University News

A WEEKLY JOURNAL OF HIGHER EDUCATION MONDAY, SEPTEMBER 2, 1996 Rs. 7.00

VINOD G. PATEL

Brain Laterality and Education

FR. XAVIER ALPHONSE, S.J.

Madras Community College — An Educational Alternative

T.K. TITUS

The Vital Role of Teachers

ABRAHAM G. THOMAS, M.V. NATU & TEJINDER SINGH

Induction Programme for Fresh Medical Students

R. NATARAJAN

Education, Science and Technology for National Prosperity

— Convocation Address

APEX BANK FOR EDUCATION

INDUSTRY-INSTITUTE INTERFACE

SOCIAL AUDITING OF AGRIL SCIENTISTS

EDUCATION — A FUNDAMENTAL RIGHT

Association of Indian Universities

Discover the World of Vikas Books

New Releases

COMMERCE & MANAGEMENT

Divatia, P J	**Indian Industries in the Twenty-First Century –A Report**	*Rs 800*
Ghosh, B	**Economic Environment of Business (Rev.)**	*Rs 395*
Ghosh, S K	**HRD in the Third World**	*Rs 295*
Mahalingam, S	**Institutional Finance for Development of Tribal Economy**	*Rs 450*
Pandey, I M	**Essentials of Financial Management**	*Rs 395*
Pandey, I M	**Essentials of Management Accounting**	*Rs 495*
Pylee, M V & Simon, A	**Industrial Relations and Personnel Management**	*Rs 250*
Ramnarayan, S & Pandey, I M	**Managing Public Enterprises in Developing Countries: Challenges and Opportunities**	*Rs 495*
Rangnekar, Sharu	**In the World of Corporate Managers**	*Rs 275*
Rangnekar, Sharu	**In the Wonderland of Indian Managers**	*Rs 195*
Rao, P L	**HRD Through In-House Training**	*Rs 325*

ECONOMICS

17497

Agrawal, A N & Kundan Lal	**Agricultural Problems of India**	*Rs 350*
Alagh, Y K	**Indian Development Planning & Policy (2nd ed.)**	*Rs 350*
Chacko, K C	**Economic Development of India & Other Major Economically Developed Countries**	*Rs 450*
Chakrapani, C	**Unemployment Stress: A Study of Educated Unemployed**	*Rs 185*
Etienne, G	**Rural Change in South Asia India-Pakistan-Bangladesh**	*Rs 395*
Gurumurthi, S	**Development Through Aid: Role of Japan**	*Rs 295*
Gurumurthi, S	**IMF and the Developing Countries: An Agenda for Reform**	*Rs 295*
Iyer, K G	**Sustainable Development: Ecological & Sociocultural Dimensions**	*Rs 350*
Mukherjee, A	**Participatory Rural Appraisal Methods and Applications**	*Rs 495*
Mukherjee, N	**GATT Uruguay Round, Developing Countries and Trade in Services**	*Rs 250*
Pal, A	**The Himalayas: Environment, Economy and Society**	*Rs 395*
Pant, B P	**Obstacles to Growth: Some Experiences of Least Developed Countries**	*Rs 225*
Ramanadham, V V	**Reflections on Public Enterprise and Privatisation: Dawn to Dusk**	*Rs 350*
Roy Choudhury, Uma Datta	**Private Corporate Sector Generation & Regeneration of Wealth**	*Rs 350*
Silwal, Uma Kant	**Population Growth and Agricultural Change in Nepal**	*Rs 350*
Singhania, H S	**Economic Issues-Global & National: A Business Perspective**	*Rs 495*
Srivastava, O S	**Economics of Growth, Development and Planning**	*Rs 495*
Venkateshwaran, R J	**Reforming Indian Economy: The Narasimha Rao & Manmohan Singh Era**	*Rs 195*

Available at all good bookshops or order from us directly. VPP Post Free. Write to us for complete checklist.

VIKAS PUBLISHING HOUSE PVT LTD
- 576 Masjid Road, Jangpura, New Delhi-110014 Tel: *4615570, 4615313* Fax : 91-11-327-6593
- First Floor, N.S. Bhawan, 4th Cross, 4th Main, Gandhi Nagar, Bangalore-560 009

Distributors: **UBS PUBLISHERS' DISTRIBUTORS LTD**
5 Ansari Road, New Delhi 110 002

Branches: BOMBAY • BANGALORE • MADRAS • CALCUTTA • PATNA • KANPUR

UNIVERSITY NEWS

VOL. XXXIV SEPTEMBER 2
No. 36 1996
Price Rs. 7.00

A Weekly Journal of Higher Education published by the Association of Indian Universities

IN THIS ISSUE

Brain Laterality and Education 1
Madras Community College — An Educational Alternative 4
The Vital Role of Teachers 7
Induction Programme for Fresh Medical Students 9

Convocation

Annamalai University, Annamalainagar 12

Campus News

Apex Bank for Education Stressed 16
Industry-Institute Interface 16
Education — A Fundamental Right 17
Bombay Varsity to Revamp Examination System 18
Curbing Brain Drain 18
ICMR Awards 20

Agriculture

Social Auditing of Agricultural Scientists 21

News from UGC

Countrywide Classroom Programme 22
Book Review 25
Theses of The Month 27
Classified Advertisements 36

Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

Brain Laterality and Education

Vinod G. Patel*

> "The left brain is described as the analytic, deductive, sequential, specific, logical and verbal processor. The right brain, on the other hand, is termed the synthetic, inductive, simultaneous, gestalt and visual processor. Although the left hemisphere often dominates for verbal processing, the important distinction is that the two sides of the brain are specialized for the way that they process information rather than for the type of information. (i.e. pictures or words) that they process."
>
> — M.C. Wittrock, et al.
> from *The Human Brain*, 1977

The knowledge that the brain has two ways of knowing has important implications for educators. However, one other element in brain functioning must be considered. It has been found that a large number of people are one side brain dominant. That is, one side of the cerebrium serves as the primary brain for processing incoming stimuli. The left brain is used by the larger number of students in processing information. These students tend to use a verbal analytical mode of thinking and problem solving in most situations. This is different than the right brained dominant individual who prefers the spatial, intuitive mode even when a left brained approach would be preferred for a particular task.

Modern teaching is not a brain compatible one. It is a lopsided one. It encourages left brained thinking but not right. Two things may be at work in our colleges that are not helpful to the full mental growth of our youth. First is, our traditional curriculum, which locks on emotional or affective dimensions (artistic) in which students' feelings are positively engaged in the learning process. Second, teacher educators, in their desire to complete course objectives are not providing enough variety in ways of learning the material. Right brained student may not be as able to complete a left brained assignment as well as those who are left brain dominant. Also, left brained dominant students need experience in utilizing right brained skills in solving problems.

The brain's capacity is almost inexhaustible. That part of our brain involved in thinking and memory and all our conscious activities has, as its most important part ten or twelve thousand million minute cells. Each of these has a set of tiny tendrils by means of which an electro-chemical message can pass from one cell to another. Thinking and memory are associated with the passage of these electrical currents. Solving problems, thinking, memory and reasoning are the most important traits of education. So we can conclude that education is also the process of electro-chemical message.

Our intelligence quotient (I.Q.) is less important than we probably

---

**Reader, Education Department, South Gujarat University, Surat-395 007, (Gujarat)* think. Many of us have an unnecessary inferiority complex about our I.Qs — the figure that represents native intelligence as compared to that of the average individual. It is easy to score lower in such a test than you deserve. This might result from temporary ill health or emotional disturbance. So, if you have ever seen your score on an I.Q. test, you can be reasonably sure that your I.Q. is atleast that high. What is the physical basis of high intelligence? Contrary to a common belief, it does not require an unusually large skull. It is likely to be associated with especially large numbers of surface convolutions in the cerebral cortex — that great top part of the brain. Highly intelligent people also have good blood circulation to the brain, bearing oxygen, glucose and certain other important chemicals. It is possible that a person with some very special talent — a mathematical or musical genius, for example — may have an unusually thick bundle of nerve fibres in one particular place in the brain.

Sperry (1961) found that each brain hemisphere had separate modes of functioning and processing incoming stimuli. In normal individuals when the nerve fibres (corpus, callosum) are intact they are used to transmit and share information with the other hemisphere. Thus each brain side (left and right) takes in the perceptions (by hearing or seeing) that it gathers from the surroundings in a unique way, stores the memory of its perceived surroundings and then shares the memory with the other hemisphere. The right brain or right hemisphere expresses itself non-verbally while the left brain thinks verbally or in words. According to Hilgard and Bower (1977), the right hemisphere has crude capability for passive visual (verbal) recognition and comprehension, its comprehension in fact, appears best with pictures, next best with concrete nouns, poorer with verbs and poorest with abstract nouns derived from verbs.

Findings of many researches show that the human brain is duplicate in its form and each brain hemisphere has its own special mode of functioning. Ivan Muse and Dwayne Belt (1980) have given the summary of specialized cerebral hemisphere functions:

Left hemisphere functions

(1) Grammatical decoding;
(2) Language tasks;
(3) Verbal, analytical problem solving;
(4) Sequential mode of processing information;
(5) Rational functions;
(6) Geometric functions.

Right hemisphere functions

(1) Spatial tasks;
(2) Intuitive thinking;
(3) Gestalt perceptions;
(4) Imagination;
(5) Imagery;
(6) Sensory;
(7) Visual.

A comparative study in Academic achievements of left brain and right brain B.Ed. students was conducted by Singh and Patel in 1992. The major findings were as follows:

(1) The total academic achievement of B.Ed. students achieved at graduate level show that the left brain students enjoy a higher capacity of total academic achievement. The finding indicates that the present system of education is more suitable and conducive for the left brain students;

(2) The difference between the male and female left brain students and male and female right brain students in relation to their total academic achievement were found non significant. It revealed that the students of a category were not found different on the basis of sex in relation to their total academic achievement achieved at graduate level; and

(3) The left brain arts graduates were found superior than the right brain students in their total academic achievement.

The present research provides a comparative picture of left brain and right brain students in terms of their academic achievement at graduate level.

The intensive researches made by Roger W. Sperry and his colleagues conclude that the two cerebral hemispheres process information differently with the recent advent of the P E T scan which measures cerebral metabolism. The findings of hemisphere specialisation along different lines have been confirmed. The two hemisphere have distinct talents.

The talents of the left brain include putting things in sequential, logical order, forming thoughts into words, speaking, reading and computing. The skills are quantitative, logical and analytical. The left brain talents and skills keep our life sensible, organized and on schedule. The right hemisphere of the brain has other talents, equally important and welcome. It is host to motor skills, intuition and emotion, to music and cadence to the ability to look at the whole situation and leaps of imagination.

Successful executives and entrepreneurs have learned naturally how and when to use both sides of their brains, combining detail and logic with a sense of overview and invention.

Partly because of genetic inheritance and mostly because of our early training, most of us prefer to use one side of the brain more than the other, usually the left hemisphere of the brain. We all begin with an active right brain functioning. For 'practical' reasons of convenience, our home, school and work place induce a left hemisphere bias, almost to an extent that there is an imbalance and the right is left out.

To solve the problems of life and work, we need logic, discipline and attention to detail. These are necessary but not sufficient. To be sufficient, we need in addition intuition, a sense of the overall picture, and free spirited invention. This latter is possible only when we draw on the right side of the brain, the home of intuition, and inspiration as well. We need to use both sides of the brain, we need to shift according to needs.

There are seven important facts of Brain Laterality :

(1) There is no such thing as 'brain fag';
(2) The brain's capacity is almost inexhaustible;
(3) Your I.Q. is less important than you probably think;
(4) Age need not prevent your learning;
(5) Your mental powers grow with use;
(6) The unconscious mind is a marvellous storehouse; and
(7) The 'old' brain and the 'new' can be kept in proper proportion.

References

Bogen, J.E., 'Some educational aspects of hemispheric specialization'. *Los Angeles, Ross-Loos Medical group,* Education Vol. 17, No. 2, 1975.

Bogen, J.E., 'The other side of the Brain : An Appositional Mind. *Bull of the Los Angeles Neurological Societies,* 34, 49, 1979.

Dastur R.H., 'Your Right Brain does not know what your Left Brain is doing'. *The Times of India,* Ahmedabad (Ed.) Sunday, March 29, 1981.

Gassaniga, M.S., *One Brain Two Minds?,* American Science Appleton Century Crofts, New York, 1972.

Rosten, I., *Brain and its function',* Film produced by a National Geographic Society, 1991.

9th UGC-CEC EDUCATIONAL VIDEO COMPETITION

Consortium for Educational Communication (CEC) is an Inter-University Centre set up by the UGC for using Electronic Media in education. CEC coordinates the production of programmes in the media centres set up by the UGC in Universities/ Institutions in different parts of India. These programmes are telecast through the Countrywide class room on Doordarshan in English and Hindi, daily. CEC organizes Educational video Competition every year to promote excellence in this field. The 9th Video Competition in 1996 is open to all Citizens/Organisations of India.

Categories of Award

A) Educational Programmes (undergraduate level):

(i) Best Programme of the year (ii) Best Series of the year (iii) Best Programme in: (a) Social Sciences (b) Science, Mathematics and Technology (c) Humanities, Literature and Communication (d) Fine Arts, Sports, Health & Culture.

B) Educational Programmes (others):

(i) Best Programme for Children (ii) Best Programme for Teachers' Training (iii) Best Programme for Non-formal Education.

C) Publication:

Best Research Publication on the use of Electronic Media for Education.

Conditions for Entry: (1) The video programme entered should have been produced between 1st October, 1995 and 30th September, 1996 (2) Any individual/organisation may enter only one programme in each category. (3) The programme in a category could be a part of a series or an independent one and (4) The duration of the programme should be between 10-30 minutes.

Last Date

For obtaining entry forms - 5th October. For submission of entry forms - **18th October, 1996.**

For further details and application forms, please contact:
Dr. Rajendra Mishra (Research Scientist)-Consortium for Educational Communication
Aruna Asaf Ali Marg, New Delhi - 110 067, Tel.: 011-6897418-19 Fax: 011-6897416

Madras Community College

An Educational Alternative

Fr. Xavier Alphonse, S.J.*

The Origin

The idea to start a community college in Madras emerged gradually during the last academic year 1995-96 in a series of meetings and discussions with the principals of various colleges in the city, educational administrators, committed leaders of the community, through interaction with professors from community colleges in USA, who visited the Centre for Vocational Education, Madras on the basis of the research done by the Centre and also the influence of the Indian delegations that have visited community colleges in USA. It is also the result of a fruitful exchange with the representatives of business, industry and service sectors.

The Madras Community College is established by the Archdiocese of Madras - Mylapore in response to the educational and employment needs of the people of Madras and its neighbourhood. Talking to newsmen on the 1st of July, the Archbishop of Madras - Mylapore, His Grace Aruldoss James expressed lucidly the need for such an institution.

> "The Catholic church has been a pioneer in education. It owns and operates a large number of primary, secondary and tertiary educational institutions in and around the city of Madras. Extensive resources have been put into these institutions over the last hundred years and more. I am inclined to believe when these institutions were created, they had a relevance and fulfilled the needs of those times. But times have changed and I am afraid our educational institutions have been left behind.
>
> I am concerned with the large number of students coming out of our secondary schools and University colleges being unable to find suitable employment and not being fully equipped to face life and its challenges. It is necessary to ask the question, for whose good are these educational institutions, if they do not prepare young men and women for life in the real world. It is said that only 18% of those who finish school go on to higher education. 82% enter the world of work with no skills, open to exploitation with low wages under poor working conditions. I believe that our institutions should change track and pay a little more attention by providing relevant and quality work skills for this large group.
>
> The time has come for the community to be involved in the shaping of the life of young people whether as educators, religious leaders or potential employers.
>
> I take this opportunity to promote the *Madras Community College* which will offer skills and work oriented education to meet the needs of the students who have finished the higher secondary school. This institution will be open for all sections of our society".

The Focus

The Madras Community College is a comprehensive institution that has started its classes on the 3rd of July, 1996 as an educational alternative to provide skill oriented, work-related, value-based and employment oriented education with employability guarantees. It is aimed at everybody in the community who is interested in acquiring work-oriented skills. The skills taught by the college will be middle level skills. The programmes to be offered at the college are :

1. Office Technology
2. Travel and Tourism
3. Cargo and Transport Management
4. Electronics (with special reference to Home Appliances)
5. Business Management
6. Sales and Marketing Management
7. Automotive Technology
8. Hospital Management
9. Health, Hygiene and Nutrition
10. Computer Hardware

These programmes that are being offered were selected after a research we had undertaken in and around the city to determine the fastest growing jobs by the year 2000. The industries identified have

---

**Director, Curriculum Development and Project Planning, Madras Community College, 2 Rosary Church Road, Santhome, Madras-600 004.*

rich employment potential.

For example, in *Automobile Technology* - The Ford Motors will bring in 22,000 new jobs, both at the assembling plant and accessory industries situated in Kilakaranai Village. The college would like to respond to this opportunity by offering a quality programme in this area.

Cargo Management - 10,000 containers will be handled every month at the Madras and Ennore Satellite Ports in two years.

Travel and Tourism - There are 90 travel and ticketing agencies in Madras.

Courses on Allied Health - There are more than 90 health centres, nursing homes and hospitals in and around the city of Madras.

Needles to say about Computer Hardware and Software, Electronics, Airconditioning and Refrigeration, Office Technology that are going to witness a substantial growth in the years to come.

The Community College is painfully aware that the government has no more jobs to offer. Only the private sector and self-employment opportunities will be available. The large middle class of the city wants and needs different types of products and services. Self-employment and promotion of entrepreneurship skills will have to be the main focus of the Community College.

The Course Content

Each programme will consist of

i. *Life adjustment skills courses:* Personality development, inter-personal relations, work-ethics, functional English and communication skills, care of the environment, awareness of AIDS, drug and alcohol abuse and family life will form core of the courses.

ii. The second component will be *work-skills courses* related to areas of specialization. There will be five major courses including one on training for self-employment and entrepreneurship.

iii. The third component will be *internship with hands on experience.* All students will be counselled and given guidance on career planning.

The Involvement of the Community at Madras

While the Archdiocese has provided a platform by creating the Madras Community College, it would like the whole community to be involved in the education and training offered by the College.

The College has a governing body with several eminent citizens of Madras including educationists, heads of business and industry, prominent and socially committed community leaders. The Governing Body will review the policy and programmes of the College.

An Advisory Board for each programme has been created. This Board will have specialists drawn from relevant industry/business/service/commercial sectors. Board members will assist in designing curriculum, evaluate teaching methods, student performance, internship and placement services.

Loyola College, Stella Maris College and A.M. Jain College have generously agreed to allow the use of their classrooms and laboratory space for the conduct of classes.

Faculty for the College will be drawn from University colleges and professional associations of practising managers and entrepreneurs. The support of service clubs like the Rotary and Lion Clubs has been sought for sponsorship of poor and deserving students and provision of financial aid to students.

The College is also planning to offer certificate and diploma programmes as a part of continuing and life-long education to the general public and to those already in the work-force who desire to update their knowledge and skills.

The University Grants Commission, the Madras University, the State and the Central Governments especially the Human Resource Development Ministry, the All India Council for Technical Education will be approached for recognition and affiliation in due course.

The US Collaboration

The constant interaction with the professors who visited the Centre for Vocational Education, Madras from American community colleges has influenced the thinking of the educational administrators, principals and faculty members of the colleges of the city who participated in the various workshops conducted by these professors during the last four years.

The Madras Community College has received overwhelming support from USA. We have letters of support from organizations like American Association of Community Colleges; Community Colleges for International Development; the Consortium of Community Colleges belonging to the City University of New York and Sinclair Community College, Dayton; College of Dupage near Chicago; Eastern Iowa Community College, District, Davenport; Macombe Community College, Detroit; Milwakee Area Technical College, Milwakee; Bunker Hill Community College, Boston.

The US colleges demonstrated their support by sending their delegates to the official inauguration of the college on 4th August, 1996. Faculty members from US colleges will help the Madras Community College to design the various programmes. The American colleges will also certify that the standards maintained by the Madras Community College in curriculum development, training and evaluation correspond to the standards maintained by the American community colleges.

The Present Position

The College is admitting students this year. These students will be studying for a university degree with the Institute of Correspondence Courses of the Madras University. The community college will arrange for coaching classes for the University degree. At the same time, they will also be taking a diploma in a specialized job oriented programme.

The annual fees is highly subsidized so that the students from economically disadvantaged groups can benefit the maximum from this new institution.

The essential difference between the traditional arts and science colleges and the community college will be that the community college will not be concentrating on pure arts and sciences only. Its emphasis will be on application and employment orientation and skills promotion. It will encourage the pursuit of knowledge, not so much for the sake of knowledge, but for the purpose of finding gainful employment, leading to better living.

To community college cannot guarantee employment to all its graduates but it can guarantee employability to everyone of its students and enhance their ability to compete in the employment market.

The Archdiocese is offering this community college to the entire community in Madras as a fitting memorial of the Centenary of the Santhome Cathedral. Fr. Tony Devotta, the Vicar General of the Archdiocese is the Chairman of this new educational venture. Fr. Joe Victor is the Administrator, Prof. Adrian Almeida, is the Principal of the College. He is also the Director of Centre for Vocational Education and has a rich experience in working with the US community colleges. Fr. Xavier Alphonse, S.J. the former Principal of Loyola college is the Director of Curriculum Development and Project Planning. He has visited a few community colleges in USA during the last academic year with a view to plan for this new institution.

Access, Affordable Quality, Educational Opportunity to all is the essence of the Madras Community College.

Concept

BOOKS ON
PARTICIPATORY RURAL APPRAISAL

1 ***Participatory Rural Appraisal: Methodology and Applications***/Neela Mukherjee Rs. 200
The book describes applications of PRA in understanding of poverty, wealth ecology, gender and health, illustrates some policy measures flowing from such application, discusses the limitations posed to the use of PRA and the opportunities which PRA offers as a participatory methodology

2. ***Participatory Rural Appraisal and Questionnaire Survey: Comparative Field Experience and Methodological Innovations***/Neela Mukherjee *(Foreword by* **Robert Chambers)** Rs 200
It attempts to compare conventional methods of investigation like questionnaire survey with participatory methods like PRA The recent empirical evidence has raised issues, opportunities and opens up potentials for methodological innovations.

3. ***Community Appraisal of Natural Resources*** (in Press)
It explains Community Appraisal of Natural Resources in a participatory framework and describes the major methods to approach people's participation with regard to the forestry sector.

Published by : Ph.: 5504042, 5554042
CONCEPT PUBLISHING COMPANY
A/15-16, Commercial Block, Mohan Garden,
NEW DELHI - 110059 (INDIA)
Cable : CONPUBCO Fax : (011) 5598898

The Vital Role of Teachers

T.K. Titus*

We celebrate once again the teachers' day on September 5 which is an appropriate occasion for some reflections on teaching. Teaching, as very correctly and repeatedly proclaimed, is a deeply satisfying and culturally vibrant profession. The glorious moments for a teacher are too many albeit most of the teachers of our time work under trying circumstances. Undoubtedly teaching is a very creative endeavour which establishes a vital and enduring link between the teacher and the taught. At the same time, let us also not forget that even this profession is not unsusceptible to the danger of getting stiffened into a monotonous routine activity offering little joy and fulfilment. Very often, it so happens that this noble profession is nothing more than "talk, talk and talk". So it is imperative on our part to do some critical and imaginative thinking about our profession and to make teaching more meaningful, rewarding and uptodate. If it is not done from time to time, we only give credence to Bernard Shaw's maxim "He who can, does. He who cannot, teaches."

The first thing that we teachers require is mentally alert, emotionally vibrant and fully alive students. For this, the teacher need to be fully alive and must vibrate with real enthusiasm and interest. Our genuine love for teaching and for our respective subjects would never go unnoticed. Obviously the most important task for the teacher is to make his or her teaching truly effective. Here lies the crux of the most vital educational problem. What is the true measure of effective teaching? Who is really an effective teacher? In this context the following passage from a Canadian Education Report (1991) is very illuminating :

> It must be clearly understood that teaching consists of more than lecturing. The ability to hold the interest of an audience during a lecture is very valuable but it is neither necessary nor sufficient as an indicator of good teaching. What counts is learning; good teaching is whatever the teacher does that enhances learning on the part of the student.... the ability to motivate students is the largest part of good teaching.

The facts mentioned in the passage are the cardinal principles of good teaching; admittedly, they are not new findings, but the way in which they are expressed is so striking that it at once catches our attention. As the report clearly states what really matters is learning and proper learning is impossible without proper motivation. In order to effect real learning on the part of the students, we need to accept the fact that teaching is a very difficult, complex and subtle task with various levels of scope, scale and impact. So it demands a great deal of effort, originality and innovativeness on the part of the educators. Simply imparting a piece of knowledge to the students in its naked form and imparting the same piece with lively and suitable examples from actual situations of life, and also by relating it to the practical applications is the difference between ineffective and effective teaching. The skill of a teacher is in his or her originality to express a concept given in the textbook. We should also remember that clarity of presentation, proper organization of content and effective communication with the use of aids, especially the most versatile blackboard, and the hallmarks of good teaching.

A deep approach to learning is very essential and learning with understanding needs to be clearly distinguished from learning by rote at all levels. A great deal of boredom and inertia that go side by side with all our learning activities is due to the fact that students very often fail to grasp the real concepts. They may be in a position to reproduce what they learn, but most of them do not develop sufficient insight into the subject. For instance, I have come across students of Physics who believe that in a step-up transformer electric current gets stepped up with the voltage. (If that is the case, there would have been no energy crisis at all and the law of conservation of energy would be no more valid!) The saddest part is that there are many students who never gave any thought to this problem even though they can write satisfactory answer on the working of a transformer. In the same way the students of Mathematics who can differentiate mathematical functions with remarkable skill have got no sufficient knowledge about the meaning and application of this very important tool of Mathematics with wide ranging applications. What is most important is meaningful learning or learning with understanding. In the present competitive world, with rapid advancement in all the branches of knowledge, only a deep approach to learning has any significance. The students need to be encouraged to become curious, explorative, original and innovative instead of being mere receivers of knowledge. When students begin to learn things with real understanding and conceptual clarity they would naturally evince keen interest in breaking new grounds.

---

* *Lecturer in English, Janata Mahavidyalaya, Chandrapur-442 401.*

We can make the classroom a very pleasant place by establishing a meaningful and enduring relationship with the students. A teacher who is sensitive to the feelings and needs of the students wins their confidence at once. Such teachers can greatly inspire the students and lead them on the path of action. If the students are convinced that they really can share their problems and difficulties with their teachers, they would never get estranged mentally and physically from the class. But if the teachers pose themselves as infallible, super humans with inexhaustible funds of knowledge, the students would never feel at ease. It is very essential to respect the sentiments of students who come from different backgrounds and varied endowments. The observation of Emerson that "the secret of education lies in respecting the pupil" tells a great truth.

Equally important is a teacher's willingness and promptness in acknowledging the good deeds and accomplishments of the students. Whenever we notice a student excelling in any activity — academic or non-academic — we need to appreciate that. This would greatly enhance the personal esteem of the students. The belief that they are winning would lead the students to nobler actions. Incidentally, one of the most sound principles of modern management is "Allow them to be winners". This epithet is very important in the field of education. Let us gather all our resources to extirpate the belief from the minds of the students that they are born losers; the great task is to allow them to be winners. Also, no teacher even at his or her most exalted moments can afford to forget the fact that it is the less brilliant, mediocre and below average students who actually need them. How well Eric Hobsbawm put this fact: "What I want to remind you of is something I was told when I began to teach in a university. The people for whom you are there, said my own teacher, are not the brilliant students like yourself. They are the average students with boring minds who get uninteresting degrees in the lower range of the second class; and whose examination scripts all read the same. The first class people will look after themselves, though you will enjoy teaching them. The others are the ones who need you."

Lastly, a word about the importance of reading would not be out of place here. It is obvious that the teachers who enrich their intellectual resources by continuous and creative reading are always at an advantage. True, what we read and reflect upon may not always have a direct bearing on what we teach in the classroom. But reading definitely gives us a perspective, as Dr. S. Radhakrishnan said, it creates a kind of 'meditative space' in us. So it has a humanising effect. It enables us to apply the pedagogical principles to actual classroom teaching with greater maturity, objectivity and wisdom; also we remain mentally active, curious and creative. I think no one has expressed this profound fact so well and so memorably as Tagore. "A most important truth," noted Tagore, "which we are apt to forget is that a teacher can never truly teach unless he is learning himself. A lamp can never light another lamp unless it continues to burn its own flame. The teacher who has come to the end of his subject, who is not furthering his knowledge, who merely repeats the lesson to his students can only load their minds, he cannot quicken them".

To conclude, there is an ever increasing scope to make classroom teaching more lively, lasting and effective. The daily insights of the teacher into the intricacies and complexities of teaching and learning would be of great help in developing the existing pedagogical tools. How to make learning an enjoyable activity with lasting effect is a problem that needs to perpetually engage our attention.

Concept *AN EXPERIMENTAL STUDY*

CHILD SURVIVAL HEALTH AND SOCIAL WORK INTERVENTION
SANDHYA JOSHI

Hardbound Rs. 215

The book discusses the social and health concerns in depth and reports on an experimental study undertaken in an urban slum of Vadodara The section on Social Intervention, Some Core Precepts and Field Projects provides the necessary backdrop of conceptual framework and allied experimentation in the field.

Sanadhya Joshi is presently working as Reader at Faculty of Social Work, M.S. University of Baroda, Baroda.

Published by : Ph.: 5504042, 5554042
CONCEPT PUBLISHING COMPANY
A/15-16, Commercial Block, Mohan Garden,
NEW DELHI - 110059 (INDIA)
Cable : CONPUBCO Fax : (011) 5598898

Induction Programme for Fresh Medical Students

Abraham G. Thomas*
M.V. Natu*
Tejinder Singh*

Medical students in India are relatively young — average age at admission being 17 years — and are fresh out of school level education. They are used to didactic mode of teaching and are overdependent on the teacher to guide their learning. In a professional college, the scenario radically changes and the student has to take an increasing responsibility for initiating and pacing his own learning. This transition is often not well received : what adds to the problems is the fact that medical teachers themselves being the products of this system, rely more on pedagogy (science of teaching children) than on andregogy (science of helping adults learn). This leads to intrapersonal conflicts (role ambiguity) and learning difficulties. Psychologically, these students belong to formal operational stage of Piaget, meaning thereby that they are capable of logical and abstract reasoning. They no longer depend on concrete reality and are capable of formulating and testing hypothesis. They can manipulate variables in a scientific situation. They have only to be 'induced' into the process. Industry long ago recognised the importance of this induction process and this has become a regular feature of almost all business enterprises.

We at Christian Medical College, Ludhiana (CMCL), have been aware of the problems encountered by the students in overcoming this transition stage. All fresh entrants to this medical school since 1987 are given a regular induction programme. The programme has been designed indigenously and undergoes changes every year depending on the feedback obtained from the students and faculty on the content, duration and methodology of the programme. We describe here the programme organised for admissions of 1995. We would like to emphasise that by no means, it can be called the final programme. The process of feedback, which is built into the programme provides ideas which, with suitable modifications are, incorporated into the next programme.

Methodology

The programme being described here was designed for fresh medical students of 1995 admissions. The overall operation was under the control of a core committee consisting of the Principal and members drawn from the Medical Education Cell of this institution.

The induction process began with a meeting of fresh students, their parents and senior faculty of the college over a cup of tea. There were informal discussions regarding various aspects of medical studies, likely problems and future prospects. The formal programme began the next day.

Day 1

Students assembled in the colleges chapel and after a brief prayer were introduced to the history of the institution, especially highlighting its achievements and contributions in the field of patient care, teaching and research. The future prospects and plans under way were also told. The students were then introduced to the concept of positive health and health management, followed by rules governing the discipline and decorum of the college and the hostels. The students were taken for a trip to various interesting places in and around Ludhiana city.

Day 2

All the students were divided into 4 batches and taken for a visit to the vast sprawling campus of the college and hospital. In the hospital, they were taken to various service areas including speciality and superspeciality services. They could talk to the patients in the out patients department as well as to those who were admitted to the hospital, and get a fairly good idea about the range of services provided by this institution. They also became aware of the public image of the college and hospital.

Day 3

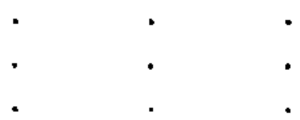
The students were taken to rural health centre attached to this hospital. This centre is 10 kms away, on the outskirts of the town and presents a lush green scenery during this season. The purpose was two fold—introduction to rural India and a picnic.

**Medical Education Cell, Christian Medical College, Ludhiana-141 008.*

After interaction with staff posted there and a tour of the village, informal group discussions were organised so that they became aware of the socio-economic-cultural context of health care.

Day 4

The programme became relatively more formal on this day. The session started with a brief talk on personality development, covering various facts of personality and how a person could take charge of his own life and shape his destiny. This was supplemented by group discussions amongst the students. Following this was a series of educational games to introduce the concepts of creativity, lateral thinking, assertiveness, listening, speaking and group dynamics. Some of these are

Game/Activity	Message
a) Nine-dot game Join the nine-dots with only 4 lines without lifting pen from paper. 	Need to think beyond the conventional boundaries and self imposed limitations.
b) The duster-game Think of 20 uses of the blackboard duster.	Brain storming. Need to separate evaluation from idea generation.
c) 'I wonder' List 5 things about which you frequently wonder. List sources to find information about these queries.	Seeking relevant and reliable information about a problem. Data collection, analysis.
d) The planning game You want to see the first show of a popular movie. Tickets are not easily available. How will you go about it.	Importance of sequential planning Gantt charts.
e) Interacting game Talk to your partner and introduce him to the group using only 5 words to describe him/her. Comment from the person being described.	Attentive listening, selecting meaningful information.
f) Fish bowl exercise Group stranded on moon with 12 items of which only 3 can be taken. Decide on priorities.	Group dynamics setting objectives, making decisions working under uncertain conditions.

Comments from the students were invited after each game and discussed with the group.

Day 5

This was the continuation of previous day's theme. The students were asked to recapitulate the previous day's sessions and the lessons they learnt from them. They were then divided into 4 small groups and each group was asked to nominate a choice for best actor, best actress, best villain and best movie award. A senior medical student was attached to 2 groups with the previous briefing to obstruct the smooth functioning of the group in the remaining 2 groups. Instructions were to first elect a leader and then proceed with discussions. The groups were to present their reports within a specified time. During discussion, importance of group dynamics and smooth functioning of the groups was discussed. In a lighter vein, a slide show depicting an animal group with various types of personalities was also presented.

Day 6

This was the day to introduce the students to Problem Based Learning (PBL). A panel discussion was organised to familiarise them with various aspects and processes of PBL. This was followed by a demonstration of integrated teaching (Topic: infective hepatitis) involving consultants from anatomy, physiology, biochemistry, pharmacology, medicine and preventive medicine.

Day 7

An overview of casualty services was provided. The students were told about simple first aid measures they could take in the event of specific casualities like trauma, foreign bodies, convulsions and natural disaster. This was followed by introduction to and hands on experience of Basic life support using a mannikin.

Day 8

The students were introduced to psychology of learning using small games e.g. remembering a sequence, understanding relationships, etc. Concept and management of memory was explained The most important session of the day was self study skills. This included a brief introduction to taxonomy of reading, SQ3R techniques and Cornell note-taking system. All the sessions were followed by group discussion, wherein the students shared the study techniques adopted by them. A session on ethial issues of medical practice was also held.

Day 9

Our being a traditional medical school, students are required to study anatomy, physiology and biochemistry during first year of their study. They were introduced to the staff of these 3 departments and were told about the scheme of studies, evaluation, prescribed texts and other equipments needed for study of the course. They raised questions on various aspects of study, which were answered by the respective faculty members.

Day 10

This was the last day of the programme. The students discussed the factors that cause stress and described ways adopted by them to counter stressful situations. This was followed by a relaxation session, during which students practised relaxation exercises through instructions given by an audio cassette.

The programme concluded after obtaining feedback regarding programme evaluation. Programme evaluation was designed using Hamblins model and concentrated on the first level of evaluation. One interesting feature of the programme was to name 5 faculty members who impressed them most — listing the qualities that impressed them.

Caps Evaluation. The programme evaluation was done by both structured as well as open ended questions. Students were divided into 5 groups to discuss the various aspects and present the reports to the total class. All of them appreciated the concept and organisation of the programme. The sessions which were rated highly included : self management, personality development, self study skills, first aid/casualty and group dynamics. It was suggested that for other sessions, theoretical portion should be minimised and more time should be devoted to educational games and group discussions.

The qualities which students appreciated in the faculty members included — personal charisma, dedication, creativity, innovative ideas, sense of humour and clarity of expression. They also indicated need for certain changes in the teaching methodology to include student centered learning and student-teacher relationship, which is based on respect and friendship rather than fear.

Discussion

Induction programmes are very important aspects of any organisation because they facilitate mutual understanding and create a sense of belonging. As the new entrant observes the organisation and identifies some of the common objectives, superordinate goals are developed. For the medical students, it signifies beginning of a commitment to a life full of challenges. To the best of our knowledge, very few medical colleges in India have a formal induction programme for fresh medical students.

The programme described above has evolved over the years after incorporating the feedback obtained from the students. Basically, it borrows heavily from managerial principles and is aimed at producing a 'complete physician' rather than a mere technologist with poor working relationships. It is intended to boost the capability of the students to cope up with increasing responsibility of self directed learning and total personality development. It also exposes them to basic techniques of self study and management of memory. In addition group dynamics and better interpersonal relationship are also highlighted. It may be pointed out that the programme uses examples and analogies from day-to-day life than from medicine, driving home important messages. This may also be considered as an innovative exercise of *edutainment* (education + entertainment) and helps to generate and sustain motivation and involvement of the learners. That the style was liked by all the students is an indicator of excellent receptivity of the programme.

Many teaching departments of CMCL have gone in for small group learning, making it imperative that students are exposed to group dynamics and group processes. Adequate attention is devoted to these aspects during the induction programme. Teaching study skills has been an important component of the programme since its inception in 1987. Concepts like SQ3R, P to V techniques, Cornell note taking system, concept-mapping, etc. are routinely discussed with the students. Evaluation in the past has shown high acceptance of this programme and less stressful learning among its practitioners.

The exercise to 'identify' impressive, faculty members is not an exercise in ego satisfaction — rather it is meant to identify characteristics which make a teacher more acceptable amongst the students. While reporting results, it is only the traits which are communicated — the names of the faculty members are held back by the evaluation team. It is obvious that personal characteristics of the teacher make him more acceptable than any formal position or authority.

The induction programme at CMCL is a humble attempt to 'induce' the students into medical studies and ensure that they do not have study related stress. A broad area is covered and efforts are made to help the students grow as better persons rather than as mere competent doctors. Evaluation of the programme suggests that its acceptability is high. It is hoped that time and effort spent to this end will be more than repaid in the form of better, humane, self-directed, life-long learners.

Education, Science and Technology for National Prosperity

Prof. R. Natarajan, Director, Indian Institute of Technology, Madras, delivered the Convocation Address at the Sixty-third Convocation of the Annamalai University. He said, "It has been axiomatic that science, technology and education are indispensable ingredients for national industrial and economic development. Science and technology can improve the effectiveness of utilization of natural resources and capital, while education is concerned with the development of human resources." Excerpts

Education, Science and Technology for National Prosperity

It has been axiomatic that science, technology and education are indispensable ingredients for national industrial and economic development. Science and technology can improve the effectiveness of utilization of natural resources and capital, while education is concerned with the development of human resources. The recent reforms in the industrial and economic sectors in India, following similar trends worldwide, have forced us to reorient our priorities and strategies in these and related sectors.

National Policies

Our government has articulated several national policies since Independence in all the critical areas listed earlier in specific terms in order to focus attention on the significant issues, prioritize resource allocation and, in general, to provide guidelines to planners and administrators.

The Scientific Policy Resolution was officially announced on 4 March 1958. The first paragraph clarified the emerging role envisaged for science, both basic and applied, and indicated the government's intention to support science and technology in order to "secure for the people of the country all the benefits that can accrue from the acquisition and application of scientific knowledge":

> "The key to national prosperity, apart from the spirit of the people, lies in the modern age, in the effective combination of three factors — technology, raw materials and capital — of which the first is perhaps the most important, since the creation and adoption of new scientific techniques can, in fact, make up for a deficiency in natural resources, and reduce the demands on capital. But technology can only grow out of the study of science and its applications".

The first Industrial Policy Resolution dates back to 1956, and provides guidelines for the implementation of the policy relating to import of technology and foreign investment. This policy has undergone many changes, but it basically recognized the necessity for continued flow of technology in areas not adequately developed, and demanded that Indian firms that are to import foreign technology should set up in-house R & D facilities so that the imported technology is properly adopted and assimilated.

The Technology Policy Statement was announced in 1983, with the basic objectives of "development of indigenous technology and efficient absorption and adoption of imported technology appropriate to national priorities and resources". It stated that :

> "Special attention will be given to the promotion and strengthening of the technology base in newly emerging and frontier areas such as information and materials sciences, electronics and biotechnology. Education and training to upgrade skills are also of utmost importance. Basic research and building of centres of excellence will be encouraged".

Since independence, many working groups, commissions and documents have recognized that human resource development has a multiplier effect on the utilization of all other resources. The concept of education as an investment in development has now been accepted, and the Report of the Education Commission (1964-66) referred to education as the only instrument of peaceful social change.

The first National Education Policy was formulated in 1968; its goal was "the creation of an ethos that would produce young men and women of character and ability, committed to national service and development". The Ministry of Education prepared a document in August 1985 entitled Challenge of Education — a Policy Perspective", containing "an overview of the state of education and pointers to the direction of future initiatives, based essentially on the views and suggestions from educational planners, teachers, students, parents, intellectuals and citizens interested in education". The document was widely circulated and discussed in several fora throughout the country, and resulted ultimately in the formulation of the National Policy on Education - 1986.

As far as technical education is concerned, the 1968 Policy stressed its importance, but dealt with it briefly. The 1986 document, while recognizing the significant contributions made by technical education to India's economic development, identified several problems requiring immediate attention : for example, obsolescence of machinery and equipment, and the non-availability of the wherewithal to deal with the training and research requirements in respect of new technologies; inability of technical institutions to attract good teachers; application of modern technology for the benefit of the common man in rural areas; viability in standards between different types of technical institutions; importance of management education in raising productivity; etc. The NPE - 1986 brought technical and management education together, for the first time, in view of their close relationship and complementary concerns.

The MHRD followed up the NPE - 1986 with a "Programme of Action" to implement the Policy. As a first step, 23 task forces were constituted, and each was assigned a specific subject covered by the NPE. The task forces were asked to specify the necessary actions, and the broad targets and the phasing of the programmes, and also the broad financial implications with reference to each phase.

The NPE - 1986 was reviewed and revised by the Acharya Ramamurthy Committee when the government changed. The revised Policy made few changes in the sections on Technical and Management Education.

The Role of AICTE

In 1988, the AICTE was vested with statutory authority for planning, formulation and maintenance of norms and standards, funding for priority areas, monitoring and evaluation, and for ensuring the coordinated and integrated development of technical and management education. The AICTE Act defined "technical education" to include programs of education, research and training in engineering, technology, architecture, town planning, management, pharmacy, and applied arts and crafts. The AICTE has made its presence felt over the past 4 years, and has taken over most of the roles of the Bureau of Technical Education in the Ministry of HRD.

Accreditation, Excellence and Quality

The AICTE, as per the Act, has also set up the National Board of Accreditation (NBA) in September 1994. The primary purpose of accreditation is to ensure quality control and quality assurance in the field of engineering education. It is a continuous process by which an approved institution and its programs are critically appraised at intervals not exceeding six years by a group of external peers for conformance to prescribed norms and standards.

The National Board of Accreditation was established in September 1994, and has come up with the manual, questionnaires and guidelines for evaluators. A number of workshops have been conducted throughout the country, involving a large number of experts from the academe and industry in order to design the assessment system, including the criteria and their weightages. It has set up Sectorial Committees and also several Visiting Committees. The visits have also been initiated, and it is hoped that all the programs in all the approved institutions would be covered in a couple of years.

The Washington Accord of 1989 seeks to establish equivalence of Accreditation policies and procedures of the signatory countries in order to permit comparison of the engineering education programs of these countries to ensure the entry of properly educated and trained manpower into the professional jobs. It is hoped that India will also sign the Accord in the near future.

Thus, we have a system now to assess and promote quality and excellence in the field of technical education in the country. Its success would depend upon the commitment and integrity of the Board and its several committees and their members.

Industry-Institution Interaction

Industry-Institution Interaction (I^3) — This is a favorite topic in all Engineering Education Conferences! There is more talk and less action, in general, however. There are so many overlapping areas of activity and concern, in fact, and yet the two systems seem to be able to survive without interaction with each other. The basic problem appears to be lack of appreciation of each other's roles, and strengths and weaknesses. The benefits that each can derive from the other are now fairly well-known and well documented.

The basic complaint of Industry is related to two factors:

- *the inability of the graduating engineers to fit directly and without additional training into industrial careers.*
- *the lack of direct applicability of R&D in the universities to industry interests.*

The response of the academe is to point out that its function is to prepare engineers for a wide spectrum of careers, as a result of which it becomes necessary to provide them with the basic fundamentals and problem-solving skills, not specialized knowledge and skills for specific industries. As far as R&D is concerned, Industry has short-term needs, while academic research is essentially long-term.

In the post-reforms era, the Institution's products — either manpower or R & D — should be marketable, and hence relevance becomes as important as quality. It is also necessary for Industry and University to forge a partnership and work together.

Continuing Engineering Education

Continuing Engineering Education (CEE) is the further education of engineers after formal education, while employed professionally. Its main purposes are to:

- *refresh and update knowledge*
- *broaden horizons in related fields*
- *offer better job satisfaction*
- *focus on what the engineer needs to know*
- *integrate education with work during career*

It is not be considered as a substitute for neglect of studies during the formal education period !

The rationale for CEE includes the following aspects:

- *Engineering knowledge and skills are multiplying exponentially.*
- *The information explosion causes rapid absolescence of acquired knowledge.*
- *The four-year period of formal education is inadequate to cover all possible professional needs.*
- *A wide range of careers are possible for an engineering student, whose needs therefore cover a wide spectrum of needs.*

Using the half-lifetime concept of acquired knowledge, it has been estimated that about 10 weeks of CEE per year would be required to combat obsolescence. There is another serious consequence of obsolescence. There are some areas such as Electronics Engineering, Computer Engineering, Software Engineering, etc. wherein it is estimated that the half-lifetime is less than 4 years. This means that by the time a student graduates, about 50% of what he has learned would have become obsolete. It is like the Professor having to caution the graduating class to ignore what has been taught during the first two years since they have become obsolete !

It has been concluded, on the basis of surveys and studies that

- *Engineers are interested in CEE that helps them to do their current job better.*
- *The target audience mainly comprises the 30-45 year age group*
- *CEE will succeed only if supported by all levels of management.*
- *To be successful, employer should pay the tuition, and allow at least some course-work on company time.*
- *Satisfactory completion of CEE must be rewarded.*

It is thus seen that Industry-Institute-Interaction and Continuing Engineering Education provide the crucial dimension of Relevance to Engineering Education.

Global Receptions

Many conferences and workshops in different countries have recently examined the future requirements of engineers to face up to the challenges of the next century. Let us remember that the next batch of students being admitted to engineering institutions will be graduating during the next century.

Some of these perceptions are summarized now. The present technical era is characterized by doing, realizing, implementing, not by explaining and understanding. This should direct the learning requirements of engineers of the future. They must be taught the ability to muster knowledge from neighboring disciplines. They have to manage rapid change and should possess initiative, flair for innovation, strong grasp of engineering fundamentals, good written and oral communication skills, inquisitiveness, desire for continued and life-long learning, ability to work with others in a group or team, and the ability to respond and adapt to change.

The way information is presented can have a significant effect on the way a student learns. Hence, more effective ways of information delivery have to be utilized. We also need a new breed of faculty : they should possess specialist expertise for R&D, yet able to generalize in instruction. They must be familiar with pedagogic techniques based on educational technology. They should shift their role from that of an information delivery system to that of an effective motivator.

Future engineers will work in more than one country, with different laws, cultures, procedures and standards; they must hence have knowledge of foreign language and culture.

Most conferences have suggested that there is a need to bestow greater attention to the practical aspects of engineering. No engineering education, at any level, should ignore devoting attention to the practical side of engineering courses. It is necessary to incorporate more practical and industrial activities. The teaching of factual materials and unnecessary analysis should be reduced, and conscious efforts should be made to integrate knowledge, skills, understanding and experience.

Implications of the 1991 Reforms

The new economic and industrial policies incorporate the concepts of liberalization, privatisation, globalization and internationalization. Some of the additional significant features are:

- *emphasis on consumer concerns such as quality, cost, variety and service.*
- *encouragement of competition.*
- *quality assurance, and to continuously upgrade quality, and at reduced costs.*
- *a border-less, boundary-less world, incorporating free exchange of money, ideas and expertise.*
- *fostering of strategic partnership and alliances in the best service of consumer.*

The recent economic and industrial policy reforms call for integration of Indian economy and industry with their global counterparts. This calls for quantum jumps in our levels of productivity and efficiency. The challenges ahead of us are related to resource constraints, conformance to international levels of energy use, environmental appropriateness, quality, reliability, costs and maximization of employment opportunities.

Strategies for Resource Management

There are two broad classes of strategies : reduce costs or increase revenue. It must be ensured, however, that in reducing costs, the quality of services and operations should not suffer; and in increasing revenue, distortions should not take place, and the principal goals and objectives should not be sacrificed. For instance, when faculty go after consultancy at the cost of teaching responsibilities, the loss will not appear in the balance sheet, but is detrimental to the fulfilment of primary objectives. There is a need to define and understand the roles of the technical institutions and their constituent components. Any innovative initiatives for resource management should be compatible with the identified roles.

Inter-Professional Comparisons

There have been many criticism against engineering education; mainly self-inflicted by engineering educators, in comparison with other professions. For example, the lack of compulsory internship and lack of close nexus with the practice of the profession as in medical education, the lack of apprenticeship as in law or accountancy, etc. However, apart from sporadic innovations such as co-op education, the response from the engineering education system has been minimal.

There are practical reasons why the different types of professional education continue to go their different ways. For example, if engineering education wished to model itself after medical education, wherein every medical school has a teaching hospital in tandem, the number of different industrial settings required would be quite unmanageable.

Engineering educators are a special breed. They practice two professions simultaneously, those of an engineer and of a teacher. In the context of the increasingly market-driven global economy, engineers will be required to participate in the entire business cycle; thus an integration of technology, management, law, etc is inevitable.

Concluding Remarks

While general education may have other goals, professional education such as engineering education is pursued to secure employment. At the moment, in our country, the intake capacity has increased considerably, and is continuing to increase — presumably in order to fulfil the social aspirations. The job potential, however, has not increased proportionately; in fact, manpower planning has been largely absent, and most decisions on quantitative expansion or on choice of disciplines are based on gut feelings. It is important to choose between frustrations at entry level for unfulfilment of aspirations to enter professional studies, and frustrations at exit level for being unable to find employment.

Apex Bank for Education Stressed

As a measure to sustain research and provide a better condition for development of academic excellence in the country, an apex bank for education should be established, said Dr. M. Anandakrishnan, Vice-Chairman, Tamil Nadu State Council for Higher Education, in Madras recently. He was participating in a panel discussion on "Science, Technology and Public Policy: Emerging Directions".

Dr. Anandakrishnan pointed out that a proposal for an Educational Development Bank was mooted some time ago when Dr. M.S. Swaminathan, agricultural scientist, was member of the Planning Commission and said such a move was possible and should be pressed for, even if it meant some initial hardship.

While the country had specialised financial institutions for industries, agriculture and other sectors, education had been neglected from the point of view of institutions providing exclusive financial assistance. In this regard, he proposed that an initial corpus of Rs. 3,000 crores be invested and the interest be used for funding educational activities.

The need for such an institution was important in the context of the various constraints faced by the sector and would go a long way in ensuring that research and development progressed unhindered.

Dr. M.S. Swaminathan, who chaired the panel discussion, expressed his hope that the scientific community would highlight its activities and developments to the common people in a language which would be understood by all.

A movement similar to the Committee on the Public Understanding of Science (COPUS) in the U.K. was required to ensure appreciation of scientific developments by people at large.

One important area in which scientists had to focus their attention was to provide solutions to deep problems involving the public. These focus areas where science should be used for public good included finding cures for malaria and other common inflictions. Expressing regret that science and scientists had been neglected in the country for the 'past few years', Dr. Swaminathan hoped that there would be a change for the better.

Prof. R. Natarajan, Director, IIT, Madras, called for an 'implementation programme' to ensure that the various policies regarding science and technology were put to action. Mr. R.S. Ganapathy, Senior Professor, Academy for Management Excellence (ACME), pointed out that nearly 80 per cent of the allocation for science and technology was spent on salaries.

Mr. S. Swaminathan, Deputy Editor, *The Hindu*, said the economic reforms package was not aimed at improving S&T in the present situation of marginalisation of the scientific community as a result of the political culture prevailing in the country. To correct the situation, moral pressure should be exerted on the Government, he said.

Prof R.M. Vasagam, Vice-Chancellor, Anna University and Dr. T. Ramasami, Director, Central Leather Research Institute (CLRI), said there should be increasing attention accorded towards replicating the successful institutions in other parts of the country as well as nurturing and encouraging young scientists.

Industry-Institute Interface

The Tamil Nadu State Government plans to set up a Statutory Science City Authority to promote industry-institute interface. This was revealed by Mr. S.P. Elangovan, Secretary, Education, Science and Technology, in Madras recently.

Under the proposed arrangement, problems faced by industry on product design or modification or any other matter will be referred to a chain of research institutions in the Adyar-Taramani area. If needed, some more specialities will be added to the existing infrastructure.

The move had been made now as no sustained effort was taken in the past to create a link between educational/research institutions and the corporate sector. If established, such an authority will be the first of its kind in the country.

Addressing a seminar on higher education, organised by the Federation of Indian Chambers of Commerce and Industry (FICCI) together with its affiliated Chambers of Commerce in Madras, Mr. Elangovan pointed out that now, 1,200 scholars were pursuing research at the Ph.D. level in various institutions in Adyar.

Referring to the Anti-capitation Act, he said the Government was keen to give more teeth to the legislation. It was also seized of the mushrooming of self-financing colleges in the State.

The Vice-Chairman of the State Council for Higher Education, Dr. M. Anandakrishnan, said the corporate sector in the country was totally insensitive towards the vocationalisation of higher secondary education. Students of the age group of 15 to 21 should be necessarily exposed to business practices. Moreover, to train students under vocational education, sufficient teachers should be produced.

Calling for drastic changes in professional education, Dr. Anandakrishnan said many private institutions in this area were run by families which had nothing to do with education. Besides, there was a lack of transparency in the functioning of the colleges. All this only defeated the purpose of involving the private sector in the education field as a support system to the Government.

Dr. S.K. Panda, Director (Research), Association of Indian Universities, said the large number of affiliated colleges had adversely affected the quality of curricular inputs and quality of instruction. The burden of examination was so high that "the universities may be termed as examining bodies rather than towers of learning". The grant of autonomous status to a hundred-odd colleges had neither significantly improved instructional practices nor reduced the burden of the universities. The bondage of administrative and academic structures should be loosened so that each region, university or college was free to act and therefore develop on its own.

Dr. V.C. Kulandaiswamy, chairman of the State Government's poverty alleviation committee and former Vice-Chancellor of the Indira Gandhi National Open University, said that while the State was close to the target of 25 per cent in vocationalisation of higher secondary education, the national average was only five per cent.

Dr. S.K. Somaiya, Chairman, Education Committee, FICCI, said the present trend of providing 50 per cent "free seats" in professional institutions had distorted the fee structure of the "payment seats" and had made the latter "exorbitantly high". This two-tier system in unaided institutions should be given up so that the present level of "formidable high payment seats" would be halved and brought to more reasonable level.

On upgrading the skills of teachers, Dr. Somaiya said that nowhere in the world, a teacher was licensed to teach for life, except in India. Elsewhere teachers had to complete requisite inservice orientation/training programmes and keep themselves abreast of the latest developments. This element of continuous education for teachers should be made mandatory in the country.

Education — A Fundamental Right

Prime Minister Mr. H.D. Deve Gowda said that the centre was planning to make the right to education a fundamental right. He was speaking after inaugurating a seminar on "Human Rights and Terrorism", organised jointly by the National Human Rights Commission and Bangalore University in Bangalore recently. Mr Gowda underlined the crucial role of education in the prevention of human rights violations and said universalisation of education could ensure equalisation of opportunities, which was a major human rights concern. Referring to the importance attached by the government to the universalisation of primary education in its Common Minimum Programme, the prime minister said the government had realised that provision of free and compulsory education to all children up to the age of 14, as envisaged in Article 45 of the Constitution, could have significant role in tackling social evils like child labour and child prostitution.

Violence in general and terrorist violence in particular affect the human rights of people in every society. The use of terrorism as a political tool, often aided and abetted by forces across national frontiers was a dangerous phenomenon which the world could not ignore. What was more worrisome, Mr Gowda said, was the fact that some of these acts were based on wrongly-understood religious-racial imperatives.

He said there had been an impression that the state was the biggest violator of human rights. However, there was also a growing recognition among the public human rights violations were caused by the armed terrorists.

Pointing out that there were already a number of international conventions and treaties on tackling international terrorism, the prime minister said the need of the hour was to translate these conventions and treaties into concrete measures. He noted that presently there was a growing consensus among the world community against terrorism.

He said the Indian government had been taking a number of initiatives for the protection and promotion of human rights. The passing of the Protection of Human Rights Act in 1993 by Parliament was a major landmark in the legislative history of India, stressing the importance attached by the country to the crucial issue. Under the act, the National Human Rights Commission was set up. The act also provided for setting up state-level human rights commissions, human rights courts, district-level committees.

Bombay Varsity to Revamp Examination System

The University of Bombay plans to radically overhaul the examination system for its arts and commerce faculties within two years. Based on the recommendations of the University Grants Commission, the scheme incorporates a question bank format and an internal system of assessment giving weightage to home assignments and project work.

The varsity has instituted an Examination Reform Implementation Unit headed by officer on special duty Mr. Kishore Valicha. "We are trying to move away from the question paper format to a question bank," he said. The plan, discussed by Vice-Chancellor Dr. Snehlata Deshmukh and faculty heads, is under consideration of Boards of Studies in each faculty.

It proposes workshops to train teachers in evaluation methodologies, "like setting papers with interconnected topics and introducing question banks based on various skills to be tested," Dr Valicha said.

In the proposed system, students would be given sets of questions (question banks) at the start of the academic year. The curriculum would be then worked around it and the annual exams based on these. Dr Valicha said it would come into force by June '98.

According Pro-Vice Chancellor Prof. A.P. Pradhan, the proposed reforms are categorised as short-term and long-term. The former is already underway with the introduction of a moderation system for exams this year. "Long-term plans include question banks, change in the proportion of subjective-objective questions and internal assessment... so that everything does not depend on year-end exams. But it will still take a year or two", he said.

Arts faculty dean Prof. Vispy Balaporia said: "There is consensus on reforms, but the manner of implementation is not decided." Senior academics admit that the present system is a dreary, uninspiring drill but they have failed to agree on a viable substitute.

"Each subject or department has specific needs and yet, the system will have to be common for all," Prof. Balaporia said, summing up the predicament.

"Due to year-end exams, students don't attend college. Portions are dropped because they are not needed for exams. It's time we use on-going internal assessment with project work and assignments as a tool to promote learning," said Dr Valicha.

The Civics and English departments have begun working in this direction. They have held a few evaluation workshops in the past two years and made project work mandatory for students, albeit on a small scale.

Curbing Brain Drain

The Federation of Indian Chambers of Commerce and Industry (FICCI) is reported to have urged the Government to impose tax or recover the amount it had spent on providing education to check brain drain from the country.

"It is estimated that when a medical doctor leaves India to settle in the United States, the country losses Rs. 3.30 lakhs and the U.S. gains Rs. 51.75 lakhs. In the same way, the emigration of one scientist makes the country poorer by Rs. 1.73 lakhs and adds Rs. 18.75 lakhs to the wealth of the U.S.", a FICCI paper says.

The loss includes not only investment loss, but also loss of skills. While monetary loss can be checked through some measures of cost recovery like lumpsum payment at the time of emigration or imposition of tax on brain drain, it would be difficult to recover the loss of talent or skill, the paper says.

It says that the primary cause behind the migration of technically qualified graduates, especially engineers from the IITs is the lack of connectivity between job opportunities in different areas of engineering and the entry of students into specific branches.

The FICCI suggests constitution of a high-powered committee consisting of representatives from engineering institutions, industry and the Human Resource Development Ministry who can get to the bottom of the mis-match.

"Furthermore, this committee could also devise an industry-institution interface for the next five years based on sectoral growth potential and the expected need of doctors, engineers and other technically qualified graduates."

It also suggests the revamp of syllabi in accordance with the needs of the market.

"The functional education must comprise the topics and issues relevant in the industrial and commercial world and a judicious restructuring of the course content at the postgraduate levels in disciplinary areas is foremost. The logic is to connect college and university leavers to the job market."

It says university education should be selective and should be for those who have aptitude.

For financing higher education in the country, the FICCI suggests three kinds of taxes — payroll tax, graduate tax and educational cess.

The payroll tax is an education-specific tax to be levied on those who use the educated manpower. Its rationale is that the employers who hire educated labour should be able to recover costs of production of that particular form of human capital.

The graduate tax should be paid by graduates themselves as repayment of the cost of education.

The FICCI says distance education is the only answer to the mad rush for admission in the formal sector.

Palpitations Eradicated by Radio Waves

A novel approach to effect life long cure of paroxysmal rapid heart action (tachycardia) in a 65 years old patient of heart attack was successfully conducted at Nizam's Institute of Medical Sciences (NIMS), Hyderabad by Dr. S. Jaishankar, Professor and Head of Department of Cardiology and his team of Dr. D. Seshagiri Rao, Associate Professor and Dr. G. Surya Prakash, Assistant Professor.

The patient, a retired constable, had been suffering from recurrent, recalcitrant paroxymal supraventricular tachycardia (paltations) since 1972 and had required several applications of direct electric shocks to his heart as a life saving measure at NIMS. He had developed a heart attack during such an episode of paltations in 1983.

An Intracardiac Electrophysiologic Study conducted by Dr. Jaishanker at NIMS in April 1991 had disclosed a concealed anomalous electric circuit at a remote location at the junction between the upper and lower Left heart chambers (Left atrium and Left ventricle) that was responsible for the perpetuation of the paroxysms. In 1991 life long consumption of medications of limited efficacy was the only option for treatment.

In recent months the patient developed recurrent 'breakthrough' attacks of palpitations despite the medications, and was quite incapacitated by the symptoms. He approached Dr. Jaishankar inquiring feasibility of life long cure for his misery. The doctor decided to apply Radio Frequency current at the precise site of location of the 'Concealed Bypass Tract' (electric short circuit pathway) within the heart.

The inaccessibility of the circuit to Radio frequency ablation was overcome by a bold and novel approach of puncturing the muscular partition between the Right and Left atrium by a needle mounted from within a sheath to gain entry into the Left atrium. Through this seath the ablation catheter was advanced to about against the precise spot on the mitral valve annulus where the culpril circuit was located. This location was deciphered by Endocardial mapping by multiple intracardiac electrodes placed at strategic sites within the heart and inducing palpitations by electric extra stimulation method. Application of 15 watts of Radio frequency energy for 13 second at the spot destroyed the anomalous electric path way yielding life long cure from palpitations. The procedure, that took four hours in the Cath Lab, was conducted under local anaesthesia with no sedation.

Dr. S. Jaishankar remarked that recurrent incapacitating palpitation is a common condition in the society at large for which a cure is now available in the form of radio frequency ablation. Palitations mediated by such "concealed bypass tracts" as in the case of the patient account for nearly 15% of the cases and is actually a variant of the Wolf-

Parkinson — White Syndrome (WPW Syndrome) described early this century. The availability of this procedure at NIMS promises to eradicate a very common cause of electrical heart disorder — cardiac tachyrrythmias.

OPENNET to Take Knowledge to People

The Vice-Chancellor of the Indira Gandhi National Open University, Prof. Ram Takwale, hoped that "due to the advancement of communication and computer technology, India shall soon witness virtual universities and institutions." He was delivering the presidential address at the ongoing Training of Trainers Programme for Panchayati Raj Functionaries organised by IGNOU in New Delhi recently. He said such advancements in education are "fast becoming practical reality in different parts of the world."

He stressed that the creation of "OPENNET (Open Educational Network)" would make transporting knowledge to people easier than transporting people to the place of knowledge.

The Vice-Chancellor said a student or learner in a remote corner of a developing country would have access to knowledge and information generated by the most advanced educational institutions in the world. He said at a time when globalisation was taking shape in a positive way in many areas of human endeavour, open education was one area where its contribution was certainly palpable.

Year of Research at Kakatiya Varsity

Kakatiya University will observe the current academic year (1996-97) as the "Year of Research". A research development committee has been constituted under the chairmanship of senior professor of pharmacy, Prof. Chandrakanth Kokate, to supervise the research activity on the campus. This was announced by the university's Vice-Chancellor, Prof. Y. Vaikuntham in Warangal recently. He said research grants to the tune of Rs 65 lakh from AICTE and Rs 8 lakh from ICSSR would boost the research activity further. An action-plan to intensify the research activity on the campus and also to procure funds from various research institutions would be drawn, he said.

A grant of Rs 64 lakh has been sanctioned for the construction of a separate building for the Department of Business Administration in Kakatiya University. This will enable bifurcation of the Department of commerce and business management.

Prof. Vaikuntham said that the Department of Education had been renamed as Institute of Advanced Study in Education, for which Rs 84 lakh was sanctioned. Out of this amount Rs. 64 lakh would be spent for the construction of the building.

The Vice-Chancellor said that vicennial celebrations would be conducted this year to mark the completion of 20 years of Kakatiya University. An exhibition on food and nutrition would be organised during the year, highlighting the ill-effects of the misuse of drugs.

A national seminar would be organised to mark the nation's golden jubilee celebrations and symposia, seminars and extension lectures arranged at various PG centres under the purview of the university. A conference hall will be constructed.

Prof. Vaikuntham said a course in Journalism would be introduced in the university during the 9th Plan. Besides, MSc (forestry) at the Nirmal PG centre and restructured courses at undergraduate level with subjects like seed technology and forest products would be started.

He announced that a quarterly newsletter highlighting the courses offered and the research activities would be published from this year.

ICMR Awards

Prof. V. Ramalingaswami, a well-known medical scientist and 20 other scientists have been selected for the Indian Council of Medical Research (ICMR) awards this year.

While Prof. Ramalingaswami gets the Dr. B.R. Ambedkar Centenary Award for his life-time contribution to biomedical research in India, Dr. Suresh H. Advani of Tata Memorial Hospital, Mumbai, receives the Sandoz oration prize for his work on tumours.

Dr. I.C. Verma of the All India Institute of Medical Sciences (AIIMS), New Delhi has been awarded the ICMR prize for biomedical research in underdeveloped areas, while Prof. N.K. Ganguly and Prof. R.C. Mahajan of the Postgraduate Institute of Medical Education and Research (PGI), Chandigarh, share the Basant Devi Amir-Chand Award.

Dr. R. Prabhakar, former director of the Tuberculosis Research Centre has bagged the Dr. P.N. Raju oration award for his research on the infectious disease.

Other AIIMS scientists to receive the ICMR awards are Dr. Sarman Singh, Dr. V.K. Behl, Dr. G.V.S. Murthy and Dr. O.P. Kharbanda.

Among other award winners are Dr. Ravindran Ankathil of the Regional Research Centre (RRC), Thiruvananthapuram, Dr. Kakoli Banerjee of the National Institute of Immunology (NII), New Delhi and Sunil Pradhan of the Sanjay Gandhi Postgraduate Institute of Medical Research, Lucknow.

A non-governmental organisation — Society for Education, Action and Research in Community Medicine, Gadchiroli, gets the Dr. M.K Seshadri prize for community medicine.

We Congratulate...

1. **Professor Dilip Kumar Basu who has taken over as Vice-Chancellor of the University of Burdwan, Burdwan.**
2. **Dr. Om Singh Tomer who has taken over as Director of the National Dairy Research Institute, Karnal.**

News from Agricultural Universities

Social Auditing of Agricultural Scientists

The Union Agriculture Minister, Mr. Chaturanan Mishra, said the Government would undertake 'social auditing' of scientists in institutions under the Indian Council of Agricultural Research (ICAR) and agricultural universities. He announced this at the foundation stone laying ceremony of the new campus of Central Institute of Fisheries Education in Mumbai recently. He said the high claims of institutions of their achievements in the form of producing a number of papers in international journals and producing postgraduates and doctorates, alone would not be accepted anymore by the Ministry.

The Ministry had chosen 11 disciplines and for each, there would be a committee comprising one agricultural scientist, one agricultural economist, one Member of Parliament, one member of Assembly and a few commissioners. These committees would oversee the concept of 'lab to land accountability' in all 90 institutions under ICAR and 26 agricultural universities all over the country. He told the scientists that this accountability was inevitable now as the fund allocation for research and development would increase substantially in the near future to meet the challenges of the economic reforms and liberalisation policies.

Mr. Mishra said the Government had given high priority to the welfare of fisherfolk in the Ninth Five Year Plan as a continuation of the earlier plans. "The benefit of advancements in the science of fisheries and aquaculture must be extended to those poorest in the rural sector," he said.

To minimise the drudgery of the coastal fisherfolk, the Ministry had enhanced the subsidy ceiling on motorisation of traditional fishing craft and made a provision for subsidies on acquiring plywood craft up to Rs. 30,000 per unit. "The Agriculture Ministry will bear 100 per cent of the excise duty on diesel supplied to the fishing boats smaller than 20 metres in length if the State Government waives the sales tax on diesel supplied to those boats," Mr. Mishra said.

During the Ninth Plan, while continuing the group insurance and model fisherfolk village schemes, it was intended to provide insurance cover to the fisherfolk for loss of their craft and gear.

The CIFE, established in 1961, is a centre for education and training in different disciplines of fisheries. With its headquarters in Mumbai, the CIFE has regional centres in West Bengal, Uttar Pradesh, Haryana, Madhya Pradesh and Andhra Pradesh.

The Union Agricultural Ministry is planning to make available high yielding variety of seeds to the small and marginal farmers in the country at subsidised rates. Mr. Mishra. stressed the need for increasing the agricultural productivity.

He acknowledged that the poor and marginal farmers were not in a position to buy and make use of the high yielding variety of seeds and other modern farm technologies. The Ministry was, therefore, planning to subsidise the high yielding seeds and other modern facilities to increase the farm productivity, Mr Mishra said.

Mr. Mishra said that agricultural scientists were being involved to prepare schemes for boosting the use of environment friendly methods to increase the productivity. "Our research institutions will have to be reoriented to meet the needs of poor farmers," he stated.

He observed that farm land in some parts of the country had become salinated and lost productivity due to excessive use of water and emphasised the minimum use of water for farming.

The agricultural ministry was also working on a proposal to cut the interest rates on farm loans and expand the crop insurance coverage, Mr. Mishra said.

News from UGC

Countrywide Classroom Programme

Between 8th and 15th September, 1996 the following schedule of telecast on higher education through INSAT-ID under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 1.00 p.m. to 2.00 p.m. The programme is available on the TV Network throughout the country.

Ist Transmission

6.00 a.m. to 7.00 a.m

8.9.96

"Count Abilities....Not Disabilities"

"Poet's Conception of Ragas and Raginis"

"The Week Ahead"

10.9.96

"Antar Jyotir, Bahir Jyotir"

"Speech Communication"

"Acupuncture Impressions Part I"

12.9.96

"Introduction to Marine Archaeology: Heritage from the Depths"

"Sitamau: A Repository of Indian Heritage"

"On Reaching the Parents: Optimum Development of the Individual"

14.9.96

"Pest Story - Part I"

"Introduction to Calculus"

15.9.96

"Science Quest 95-96 - Part I"

"Traffic Safety First"

"The Week Ahead"

IInd Transmission

1.00 p.m. to 2.00 p.m

9.9.96

"The Week Ahead"

"The Physics of Music-II — The String Instrument"

"Rational use of Energy at Home"

10.9.96

"The Silver Beaters"

"Your Form is My Creation"

"Acupuncture: Experiences - Part II"

11.9.96

"Non-Voice Communication Facilities through Telecom"

"Chhatri Architecture of Holkars - Part I"

"The Tale of Fishes Serving Deadly Dishes - Part I"

12.9.96

"New Horizons"

"Coconut Cultivation -Part I"

13.9.96

"Pest Story-Part II"

"Ayurveda"

"All are Neighbours: Protection of the Environment in Germany"

14.9.96

"Science Quest 95-96 - Part II"

"Blue Pottery: A Marvel in Quartz"

"An Edifice that Meditates: The Architecture of Bahai Temple"

Hindi Telecast

प्रातः 6.00 से 6.30 बजे तक

09.9.96

"जोधपुर के बलुआ पत्थर-भाग 2"

"साम्प्रदायिक सद्भाव:
गाँधी के विचार"

11.9.96

"संत कबीर - भाग 2"

"एक नई दिशा"

13.9.96

"आधुनिक कबड्डी:
एक परिचय - भाग 1"

"ऊर्णन"

CENTRE FOR ELECTRONICS DESIGN AND TECHNOLOGY OF INDIA (CEDTI)

(An institution under Govt. of India, Department of Electronics)
Akampat, Post Box - 104, Imphal - 795001 (Manipur)

RECRUITMENT

CEDTI unit at Imphal invites application for the following temporary posts (likely to continue):-

1. Principal Design Engineer (Pay Scale Rs. 3,700-125-4,700-150-5,000): 1 Post (Unreserved : Recruitment/Deputation)

Qualification: B.E. or recognised equivalent degree in Electrical/Computer/Electronics and Communication Engineering with not less than 65% marks or M.Tech./M.E./M.Design in the above fields or Ph.D. (Engg.).

Age Limit: 40 Years.
Age shall be relaxed by 5 years for SC/ST candidates and by 3 years for OBC candidates. Age relaxation for Govt. servants shall be applicable as per normal rules.

Experience: In the fields of power electronics, electronics and telecommunication, industrial instrumentation or computer engineering is required for the candidates as follows:-

For B.Tech. 10 Years, M.Tech. 8 Years and Ph.D 5 Years

Persons working in the field of Design and Development of Electronics Products/Systems will be preferred.

How to apply: Application may be sent to the Director at the address given on the top, giving

(i) Name (ii) Father's name (iii) Date of birth (iv) Sex (v) Whether belongs to SC/ST/OBC (vi) Nationality (vii) Permanent address (viii) Address for correspondence (ix) Qualifications (x) Experience (if any) and accompanied by an account payee draft of Rs. 50/- (No fee for SC/ST) drawn in favour of CEDTI, Imphal (Payable at Imphal) and a passport size photograph, within 30 days of publication of this advertisement. Candidates called for interview from outstation will be reimbursed to and fro single rail fare by Second class. Interview will be held either at Delhi or at Imphal. Applications not accompanied by Bank draft, photograph and attested copies of certificates or received late may not be considered.

davp 1246 (3) 96 Administrative-Cum-Accounts Officer

Observers for Inter University Tournaments

ALL INDIA BASIS

S.No.	Game/Event	Org. University	Name of the Observer	University/Institute
1.	Athletics (M&W) & Half Marathon & Walking	LNIPE, Gwalior	Dr Ajmer Singh	Panjab University
2.	Ball Badminton (M)	AP Agril	Sh Shivarama Krishna	Alagappa University
3.	Ball Badminton (W)	Kerala	Dr (Mrs) K Verghese	Avinashilingam Institute
4.	Boxing	Jamia Millia	Sh Kapur Singh	MDU, Rohtak
5.	Chess	Sri Venkateswara	Shri G L Shah	Kumaun University
6.	Cricket (W)	Poona	Dr N K Pandey	IIT, Kanpur
7.	Cross Country (M&W)	Kuvempu	Sh K Raman	Anna University
8.	Cycling (M&W)	Panjab	Dr M S Sangral	Punjabi University
9.	Football (W)	Alagappa	Sh D K Ghosh	Burdwan University
10.	Gymnastics & Malakhamb (M&W)	Marathwada	Dr G S Bawa Dr Monika Dev Nath Dey	NIS Patiala LNIPE, Gwalior
11.	Hockey (W)	Annamalai	Dr Avinash Siddhu	LNIPE, Gwalior
12.	Judo (M&W)	Kurukshetra	Sh Prasad Ranjan Mazumdar	Tripura University
13.	Rowing (M&W)	Calcutta	Sh M Pandurangam	Madras University
14.	Softball	JNV, Jodhpur		
15.	Squash Rackets	JNV, Jodhpur	Dr M I Qureshi	Devi Ahilya Vishwavidyalaya
16.	Swimming Diving & Water Polo	IIT, Kanpur	Dr V K Dabas	LNIPE, Gwalior
17.	Tennis (W)	Bangalore	Sh Jaya Kumar	Sri Venkateswara Univ.
18.	Power Lifting, Wt. Lifting & Best Physique (M&W)	Rohilkhand	Sh R K S Dagar	Gurukula Kangri Vishwavidyalaya
19.	Wrestling	CCS, Meerut	Sh P K Tiwari	Gulbarga University
20.	Yoga	Kurukshetra	Shri C G Jhala	Gujarat Ayurved

TWO ZONE BASIS

S.No.	Game/Event		Org. University	Name of the Observer	University/Institute
1.	Basketball (W)	NEZ	Panjab	Ms Linda Rose Dannis	SNDT, Bombay
		SWZ &IZ	Pondicherry	Ms. Sophie Titus	Banasthali Vidyapith
2.	Handball (M&W)	NEZ &IZ	Guru Nanak Dev	Sh Shakti Singh Manlloi	Rani Durgawati Vishvavidyalaya
		SWZ	Annamalai	Dr. V R Vijayrao	Nagarjuna University
3.	Kabaddi (W)	NEZ	Dr Y S Parmar	Mrs Sudershan Pathak	Delhi Uiversity
		SWZ &IZ	M Sundaranar	Dr P Mariayyah	Bharathidasan Univ.
4.	Kho-Kho (M)	NEZ &IZ	Panjab	Dr K A Tarzon	Kashmir University
		SWZ	Vikram	Sh P Shivaswamy	Bangalore University
5.	Kho-Kho (W)	NEZ &IZ	Guru Nanak Dev	Sh Patil Babu Rao	Swami Ramanand Teerath Marathwada
		SWZ	LNIPE, Gwalior	Sh D Shunmaganathan	Manonmanium Sundaranar Univ.

6.	Tennis (M)	NEZ	BIT, Ranchi	Prof Dilip Roy	Calcutta University
		SWZ &IZ	Annamalai	Dr M Govindarajulu	Pondicherry University
7.	Volleyball (W)	NEZ	Dr Y S Parmar	Dr Kamaljit Singh	GNDU
		SWZ &IZ	Gujarat Ayurved	Dr M A Khan	MDSU, Ajmer

FOUR ZONE BASIS

1.	Badminton (M&W)	NZ &IZ	GNDU	Mrs D Tambay	JNU, Delhi
		EZ	Burdwan	Dr S Bhowmik	Kalyani University
		SZ	Madurai Kamaraj	Dr V V B N Rao	CIEFL, Hyderabad
		WZ	IIT, Bombay	Prof L T Deshmukh	Poona University
2.	Basketball (M)	NZ	HAU, Hisar	Dr Ashok Kumar Gupta	M S College, Saharanpur
		EZ &IZ	BHU	Dr J S Naruka	Delhi University
		SZ	Gandhigram Rural Instt.	Sh N Gobinarajulu	Pondicherry University
		WZ	Jiwaji	Dr Rishipal Singh	LNIPE, Gwalior
3.	Cricket (M)	NZ& IZ	CCS, Meerut	Sh Noor Mohd	Jamia Millia
		EZ	Ranchi	Sh Shiv Prasad	Vinoba Bhave University
		SZ	Karnatak	Dr K V Shenoy	Mangalore University
		WZ	Jiwaji	Dr Sreedarshan Desai	Nagpur University
4.	Football (M)	NZ& IZ	Kurukshetra	Dr V M Sharma	Amravati University
		EZ	Dibrugarh	Dr M M Kalita	Assam Agril Univ.
		SZ	Bangalore	Shri O K Paul	Kerala Agril Univ.
		WZ	Barkatullah	Dr D K Bandopadhyaya	Kalyani University
5.	Hockey (M)	NZ& IZ	AMU	Shri G S Bhangu	NIS, Patiala
		EZ	Pt Ravishankar	Shri G L Sah	Kumaun University
		SZ	Madras	Sh A R Dhanaraj	Madurai Kamaraj University
		WZ	Jiwaji	Dr Paramjit Singh	Rajasthan University
6.	Kabaddi (M)	NZ	Dr Y S Parmar	Sh Suresh Prasad Singh	Magadh University
		EZ	Burdwan	Dr Surender Singh	Kashi Vidyapith
		SZ	Bharathidasan	Dr K Vaithyanathan	Annamalai University
		WZ& IZ	Bombay	Prof P Chinnappa	Sri Krishnadevaraya Univ.
7.	Table Tennis (M&W)	NZ &IZ	H P Agril	Sh S Ali Zaidi	AMU
		EZ	Burdwan	Sh Kunal Chatterjee	Calcutta University
		SZ	Mahatma Gandhi	Dr S Sivaramakrishnan	Alagappa Univ.
		WZ	LNIPE, Gwalior	Shri P K Bhardwaj	BITS, Pilani
8.	Volleyball (M)	NZ	Allahabad	Dr A S Chandel	Dr Y S Parmar Univ. of Horticulture & Forestry
		EZ	Vinoba Bhave	Shri R S Yadav	BITS, Pilani
		SZ	Kakatiya	Prof K R Muthuswamy	Bharthiar University
		WZ& IZ	Konkan Krishi	Sh Dalel Singh	Kurukshetra University

BOOK REVIEW

A Valuable Addition

Ajoy K. Ghose*

Sunit Kumar Sarkar & Subhankar Sarkar. State of Environment and Development in Indian Coalfields : Coalfields in West Bengal. New Delhi, Oxford & IBH Publishing Co, 1996. Pp. xi + 185. Price Not Stated.

The book under review is an unusual one highlighting the litany of environmental problems due to coal mining in the State of West Bengal. The Raniganj Coalfield had been the cradle of organised coal mining in India and the problems which have surfaced today are essentially the aggregated impacts of past neglect. The authors, who hail from the coalfield, have sought to project through this book the dimensions of the problem, with a fervour and zeal of a missionary. The authors articulate the fears, hopes and aspirations of the inhabitants of the coalfield (which encompasses the districts of Burdwan, Birbhum, Bankura and Purulia in West Bengal) where coal mining industry has also spawned environmental problems. In the backdrop of the proposed World Bank assistance to Coal India Limited for environmental and rehabilitation action plans in the coalfields, the book is topical and provides some insight into the array of environmental problems which beleaguer the Raniganj Coalfield.

The genesis of organised coal mining in India can be traced back to 1774 when Sumner, Heatly and Redferne moved the East India Company for permission to mine coal in the Raniganj area. The history of 19th century coal mining in India was essentially the history of coal mining in Bengal. Chapter I of the book provides a glimpse of this coal mining legacy and recounts the rise and fall of Carr, Tagore and Company, a coal company founded by Prince Dwarkanath Tagore, the grandfather of the bard of Bengal, the Nobel-Laureate Rabindranath Tagore. The chapter also records the winds of change that swept through the coalfield after nationalisation of the coal industry in 1973, including the emergence of opencast mining with predatory impacts on land.

Chapter II examines critically the adverse impacts of coal mining vis-a-vis land degradation, which estimatedly could account for damage to some 15% of the coal-bearing tract. The loss of cultivable land has led to the migration of agricultural workers from this coal belt. Land-use conflicts have also emerged and major opencast projects have been stalled with time and cost overruns.

The legacy of underground mining of the past at shallow depths of cover poses a recurrent threat of sudden subsidence at many locations in the coalfield. Chapter II discusses this problem and there are reportedly some 49 areas in the Raniganj Coalfield where the stability of the surface is suspect. The authors have attempted to assess the current shelf of techniques for the delineation of old and abandoned workings and the methods of stabilisation. The next chapter, somewhat piquantly titled "Planned Subsidence", presents a broad-brush survey of the likely impacts of subsidence in the coal belt.

Chapter V deals with the effects of blasting-induced ground vibration and airblast on dwellings and humans and summarises the currently accepted norms of vibration levels in India and abroad. Reference is made to a study on the perception of householders to blasting vibrations and the authors recommend that the vibration standards in India need to be more stringent, in keeping with the trends abroad.

Chapter VI presents an account of the problems of water in the Raniganj Coalfield where the daily pumping of some 70-100 million gallons of water from the mines has resulted in the lowering of the watertable and scarcity of water in some areas of the coal belt. Citing the Indian Standards on Water Quality, the authors examine the pollution levels of the river Damodar at different points in the coalfield. The analysis makes it abundantly evident however that the pollution of the river could largely be ascribed to industrial effluents and not to coal mining *per se*.

The following Chapter VII on

Formerly Director, Indian School of Mines, Dhanbad.

air pollution in the Raniganj Coalfield refers to the problem of vehicular emissions arising from the transport by road of some 10,000 tonnes of coal and 15,000 tonnes of sand every day. The authors decry the system of free coal allowance to coal mine workers which has resulted in the burning of 'chullahs' almost perennially exposing the womenfolk at home to the hazards of gaseous pollutants from the burning of coal.

Chapter VIII deals with the societal impacts of coal mining and highlights the dwindling employment opportunities in the coal belts of West Bengal and the swelling numbers of the educated unemployed. Some insight has also been provided on occupational health problems of miners. The next chapter deals with the changes in the socio-demographic profile of the coalfield including population growth (arising from the influx of migrant workers), changes in the rural/urban mix of the population, adverse sex ratio, and the decline in the overall percentage of scheduled tribes. According to the authors, there has been a steady impoverishment of the small farmers. For coal mine workers, despite a substantial increase in gross emoluments, the problems of indebtedness and drinking habits persist. Chapter X provides a patchy framework for a mixed strategy for sustainable development of the Raniganj Coalfield, while Chapter XI, the final one, collates the environmental legislations pertaining to mining in India.

Despite the emotive overtone, some factual errors and lack of objectivity at places, the book is a valuable addition to the growing body environmental literature and should stimulate focused attention on the environmental and developmental problems of Indian coalfields. The quality of the language of the text could be improved upon and spelling and grammatical mistakes corrected through more careful editing. It is jarring to find repeated references to the work of '*the author*', in a text apparently written by joint authors. Likewise, one would expect that the authors who hail from West Bengal would be careful enough to spell 'Rabindranath' correctly and not as 'Ravindra Nath'! These are however minor criticisms and do not detract in any way from the overall quality of the effort. Hopefully, if the title of the book reflects the intentions of the authors, one could expect more of such environmental reports on Indian coalfields.

COMMUNICATION

Private Investment and Technical Education

After the creation of the All India Council of Technical Education, no technical and management institution could be opened in India without its prior approval. With the alarming rate of advertisements in the national dailies of various technical institutions, it could be presumed that mushroom growth of technical education has diluted this sector of higher education in India. With the World Bank's policy of encouraging private initiative in higher education in less developed countries, in India, during the last five years, engineering and management institutions have become a growing industry with heavy private investment. In middle income countries, the enrolment increment is @ 7.3 per cent per year and that includes India.

One can understand that higher education needs very heavy investment and financial constraints in the public sector are forcing the Govt. to opt for private investment. The rapid increase of such institutions have resulted in money making shops. Although AICTE must have very strict norms of granting approval I know of one such engineering college in the offing, where there is not even a screw driver in the name of hardware but the provisional approval has been given by the AICTE, less said for the courseware and human resource the better. In such institutions the basic concept of TQM (Total Quality Management) is lost. Therefore, such institutions hardly serve the purpose of 'change agents' in social development. Private rate of returns is considered primary as compared to social rate of return in such institutions.

I don't know if credibility of the managements of such institutions is also a touchstone for the AICTE because undesirable managements know how to cunningly circumvent all the rules.

L.N. Mittal
Principal, S.D. College,
878-A South Bhopa Road,
Muzaffar Nagar-251 001

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities

HUMANITIES

Philosophy

1. Balachandran, Jaya. **State and philosophy of human resource development : The Indian reality.** Osmania, Prof K Wilson, Department of Philosophy, Osmania University, Hyderabad.

2. Bosak, Jyotish Chandra. **A critical study of Russels' socio political philosophy and its contemporary relevance.** AMU, Prof Waheed Akhtar.

3. Gangadharam, Pattisapu Sakuntala. **The doctrine of being and knowledge in the Advaita Vedanta Sankara Prasthanatreya and Prakarana Granthas.** Andhra,

4. Karan Reddy, Rajeev. **Social reconstruction in the philosophy of Jai Prakash Narayan : A critical study.** Osmania, Prof R Venkat Reddy, Department of Philosophy, Osmania University, Hyderabad.

5. Mishra, Dipak Kumar. **A critical study of Nyayadarshasya.** Jagannath, Dr Keshab Chandra Dash, Reader, Department of Nyaya, Shri Jagannath Sanskrit Vishvavidyalaya, Puri.

6. Nair, Sujatha M G. **The mind brain identity theory : A critical study.** Calicut, Dr V C Narayana Das, Head, Department of Philosophy, University of Calicut, Calicut.

7. Pal, Supriya. **A comparative study of the epistemological and ontological doctrines of David Hume and A J Ayer.** JNU, Prof (Mrs) Suman Gupta, Group of Philosophy, Jawaharlal Nehru University, New Delhi.

8. Samanta, Srikanta. **Systems of Indian philosophy on the concept of Nirvikalpaka Pratyaksa : A critical study.** Burdwan, Dr A N Bhattacharyya, Department of Philosophy, University of Burdwan, Burdwan

9. Sanjeev, M P. **The question of state and Marxist response : A philosophycal analysis in the light of the late 20th Century.** Calicut, Dr Nirmala Devi, Reader, School of Gandhian Studies, Mahatma Gandhi University, Kottayam.

10. Shrivastava, Arti. **Swami Vivekanand ke darshan mein Vishwadharam kee awadharna.** Durgavati, Dr (Kum) Gayatri Sinha, Department of Philosophy, Rani Durgavati Vishwavidyalaya, Jabalpur.

11. Singh, Rajkumar Sanajaoba. **A study of the problem of other minds.** Manipur, Prof S Shyamkishore Singh, Department of Philosophy, Manipur University, Imphal.

Religion

1. Kiran Kumar. **A critical study of theYanabheda in Buddhism.** Jammu, Prof R K Mishra.

2. Yaruingam, A S. **Hinduism and Christianity in Manipur: A comparative study of Vaishnavism and Baptist sect.** JNU, Prof C N Venugopal, Centre for the Study of Social System, Jawaharlal Nehru University, New Delhi.

Fine Arts

Music

1. Bhale, Sunita. **Bilal gawam Bihag ke ragon ka adhyayan.** Indira Kala, Dr A C Choubey, Indira Kala Sangeet Vishwavidyalaya, Khairagarh.

2. Dogra, Arun Kumar. **Hindustani sangit mein sanshmit yoga tatva.** HP,

3. Khot, Jayant. **Abdul Karim Khan ka Bhartiya sangit mein yogdan.** Indira Kala, Dr A C Choubey, Indira Kala Sangit Vishwavidyalaya, Khairagarh.

4. Md Harun-Ar-Rashid. **A study of the folk songs in Bangladesh.** Baroda,

Dance

1. Aruna, G. **Sattvikabhinaya and psychosomatics with special reference to Kshetrayya Padams.** Hyderabad, Prof Nataraja Ramakrishna.

Language & Literature

1. Basu, Kasturi. **Linguistic conflict and language policy in multilingual societies : A case study of Switzerland and India.** JNU, Prof R C Sharma, Centre for International Politics, Organization and Disarmament, Jawaharlal Nehru University, New Delhi.

2. Kim, Do Young. **Stylistic analysis of the Book of Isaiah.** JNU, Dr Kapil Kapoor, Centre of Linguistics and English, Jawaharlal Nehru University, New Delhi.

3. Ravichandran, G. **Cultural background of Indian advertising : A semiotic analysis in Tamil and English.** JNU, Prof H S Gill, Centre of Linguistics and English, Jawaharlal Nehru University, New Delhi.

4. Saha, Sanghamitra. **Reduplication in Bengali, Mundari and Telugu : A linguistic study.** Telugu,

5. Urmil Rani. **The semiotic structure of the rites of passage in Punjabi society.** Punjabi, Dr Surjit Singh, Department of Linguistics, Punjabi University, Patiala.

English

1. Anthony, P V. **A critical study of Anita Desai's narrative techniques.** Durgavati, Dr S B Shrivastava, Head, Department of English, Rani Durgavati Vishwavidyalaya, Jabalpur.

2. Banerjee, Shukla. **Portrait of women in the novels of Charlotte Bronte.** Ravishankar, Dr J S Rao, Reader (Retd), C/156, Devendra Nagar, Sector 1, Raipur.

3. Bhaisora, Jyoti. **Dramatic monoloque in modern American poetry with special reference to Edwin Arlington Robinson.** Kumaun, Dr M S Karki.

4. Dhir, Sangeeta. **William Dean Howells and the rise of realism in American Fiction.** Punjabi, Dr G S Rahi, Department of English, Punjabi University, Patiala.

5. Kuriakose, K J. **Mark Twain in Malayalam : A study of translation across cultures and literatures with reference to Huckleberry Finn.** Calicut, Dr Mohamed Elias, Prof, Department of English, University of Calicut, Calicut.

6. Mallick, Abdus Salam. **Imagery in Eugene O Neill's early plays, 1913-1922 : A study.** Burdwan, Prof M K Roy, Department of English, University of Burdwan, Burdwan.

7. Mohanan, Sudha. **Are they parasitic : A comparative study of multiple gap constructions in English and Malayalam.** CIEFL, Prof K V Tirumalesh.

8. Namratha, M. **Liberal politics and the individual : The critique in American and British feminist Utopian fiction of the 1970's.** CIEFL, Prof Susie Jacob Tharu.

9. Nirupma. **Alienation techniques in the plays of Thornton Wilder.** HP,

10. Oommen, Abraham. **Conversion, a phenomenon of the soul : A critial evaluation of the novels of Graham Greene.** Ravishankar, Dr S B K Murthy, Principal (Retd), Saket Colony, Kotul Bode, SAF Rest Office, Durg.

11. Ram, Uma. **Major Indian poets in English : A study in Indianness as a value in terms of art.** Ravishankar, Dr J S Rao, Reader (Retd), C/156, Devendra Nagar, Sector 1, Raipur.

12. Rama Sastri, Sripada. **Katherine Anne Porter : A thematic approach to her fiction.** Andhra,

13. Rehan, Shabana. **Edgar Allan Poe : A study of his critical writings.** Lucknow, Prof D D Sharma.

14. Sanghi, Varsha. **Imagery in the poetry of John Keats and Mahadevi Verma.** Durgavati, Dr S B Shrivastava, Head, Department of English, Rani Durgavati Vishwavidyalaya, Jabalpur.

15. Sen, Indrani. **Representations of women in the fiction of the British Raj in the 19th century.** JNU, Prof Meenakshi Mukherjee, Centre of Linguistics and English, Jawaharlal Nehru University, New Delhi.

16. Sharma, Kavita. **Human relationships in the novels of Gabrielle Roy and Marie Claire Blais.** HP,

17. Sodhi, Paramjit Kaur. **Solitude in society : A study of character relationships in the novels of Joyce Carol Qates.** Punjabi, Dr Kum Kum Bajaj, Department of Correspondence Courses, Punjabi University, Patiala.

German

1. Sahni, Madhu. **Zum Geschichtsverstandnis Heinrich Nanns in senier essayistischen arbeit, 1905-1950.** JNU, Prof Anil Bhatti, Centre of German Studies, Jawaharlal Nehru University, New Delhi.

French

1. Xavier Raj, **Gabriel Francies L Apport Fancais La lexicographie Tamile.** JNU, Dr C Krishnamurthy, Centre of French Studies, Jawaharlal Nehru University, New Delhi.

Sanskrit

1. Chaturvedi, Hansha. **Kalidasiya kriyapadon ka shabdashastriya vishleshnatmak adhyayan.** Ravishankar, Dr K D Saraswat, Principal, Govt College, Abhanpur, District Raipur.

2. Dey, Kajal Chandra. **Rigvediya sayanabhasyer viniyoga vakyartha sameeksha.** Burdwan, Prof G N Bhattacharyya, Department of Sanskrit, University of Burdwan, Burdwan.

3. Gopalakrishnamacharyulu. **Madhudharakhyavyakhyo petayah Sudhindrayativiracitayah alamkaramanjaryah pathasameekshatmakam sampadanam.** Sanskrit Vidyapeeth,

4. Mehta, Rashmi P. **Epics of Ashwaghosh.** Saurashtra, Dr R P Mehta.

5. Menon, K Ravisankar. **Saharajiyasya sampadanam adhyayanam CA.** Sanskrit Vidyapeeth,

6. Pathak, Vineeta. **Vaishnav puranon ke pariprekshya mein Vaishnav dharma ka tulnatmak evam vivechnatmak adhyayan.** Kumaun, Dr D R Tripathi.

7. Rama Devi. **Yogavashishthasya darshanika gaveshanam.** Andhra,

8. Rama Sastry, Kalaga Venkata. **Studies in historical Sanskrit poetry of A P, B C 225 to A D 1675.** Osmania, Dr M Gopala Reddy, Department of Sanskrit, Osmania University, Hyderabad.

9. Satyalakshmi Devi, I. **The character of Arjuna in the Mahabharata : A critical study.** Andhra,

10. Shashi Kala. **Malvikagnimitram : Ek sameekshatmak anusheelan.** Veer Kunwar,

11. Tripathi, Vidyakant. **Ramayan ke apaniniya, Arya, prayogon ka shabda shastriya adhyayan.** Ghasidas, Dr (Smt) Pushpa Dixit, Govt Girls Degree College, Bilaspur.

12. Upender Rao, C. **Philosophical ideas in Dighanikaya.** Osmania, Dr M Gopala Reddy, Department of Sanskrit, Osmania University, Hyderabad.

Punjabi

1. Rajvinder Kaur. **Kapoor Singh Ghuman de natakan vich nari samvedana.** Punjabi, Dr Satinder Kaur, Reader, Department of Punjabi, Correspondence Courses, Punjabi University, Patiala.

2. Surjit Singh. **Pragativadi Punjabi natak : Ik mulyankana.** Punjabi, Prof Kuldip Singh Dhir, Department of Punjabi, Punjabi University, Patiala.

3. Tara Singh. **Dalip Kaur Tiwana ate Krishna Sobti de navalan vich nari chetna : Ik tulnatmak adhyayan.** Punjabi, Dr Gurtaran Singh, Lecturer, Department of Punjabi, Punjabi University, Patiala.

Hindi

1. Alang, Ravindra Kaur. **Pt Suryakant Tripathi Nirala kee kavyettar rachnayon ka sanskritik anusheelan.** Ghasidas, Dr Bihari Lal Sahu, Govt College, Raigarh.

2. Amar Jyothi. **Mahila upanyaskaron ke upanyason mein narivadi drishti.** Osmania, Dr M Venkateshwar, Department of Hindi, Osmania University, Hyderbad.

3. Anibolin Devi, Tnounaojam. **Vishnu Prabhakar ka**

natakon mein adhunik nari. Manipur, Dr Devraj, Department of Hindi, Manipur University, Imphal.

4. Asha Devi. **Navam dashak, 1981-90 kee Hindi mahila kathakaron kee nari chetna.** Dayanand, Dr P Bansal.

5. Bharade, Sandhya. **Hindi patrakarita aur Dr Prabhakar Madhave.** Nagpur, Dr (Smt) Yogeshwari Shastri, Head, Department of Hindi, L A D College, Nagpur.

6. Bhoi, Sushma. **Vishnu Prabhakar ke natakon mein jeewan mulyon ka anusheelan.** Ravishankar, Dr V K Mishra, Principal (Retd), 34/B, Rikriyesh Marg, Choubey Colony, Raipur.

7. Chaube, Dhaneshwari. **Amrit Lal Nagar ke upanyason ka vastu aur rupgat anusheelan.** Ghasidas, Dr S P Pandey, Department of Hindi, C M D College, Bilaspur.

8. Choudhari, Vedvati Dwarkaprasad. **Navam dashak kee kahaniyon mein kamkaji nari kee bhumika.** Marathwada, Dr Dhanraj Mandhane, Prof and Head, Department of Hindi, Balbhim College, Beed.

9. Choudhary, Kedar. **Bhartendu Harishchandra ke natakon mein lok chetana.** JNU, Prof Manager Pandey, Centre of African and Asian Languages, Jawaharlal Nehru University, New Delhi.

10. Dass, Joseph Barnard Arokia. **Josh Malihabadi aur Ramdhari Singh Dinkar ke kàvya mein rashtriya chetna ka tulnatmak adhyayan.** Jamia, Dr (Mrs) Phool Manchanda, Department of Hindi, Jamia Millia Islamia, New Delhi.

11. Dave, Sarala S. **Yashpal ka kahani sahitya : Shilpa vidhan evam chintan.** Nagpur, Dr Durgashankar Mishra, Head, Department of Hindi, P W S College, Nagpur.

12. Dwivedi, Basu Nayak. **Rashtrabhasha Hindi ke vishesh sandarbh mein karyalayeen shabdavali ka samaj sapeksh anusheelan.** Patel, Dr A P Mishra, Reader, Post Graduate Department of Hindi, Sardar Patel University, Vallabh Vidyanagar.

13. Dwivedi, Usha. **Nirala ka katha sahitya : Vastu aur shilpa.** Burdwan, Sri S N Pandey, Reader, Department of Hindi, University of Burdwan, Burdwan.

14. Gour, Shambhu Singh. **Nai kavita ko Raghuvir Sahaya ka yogdan.** HS Gour, Dr Sriram Parihar, Department of Hindi, S N Govt P G College, Khandwa.

15. Gupta, Devinder Kumar. **Hindi natya shilpa : Badalti rang drishti.** HP,

16. Jain, Anop Chand. **Dr Shankar Shesh ke natakon mein chitrit mulyon ke vighatan ka adhyayan.** Ghasidas, Dr Saroj Kumar Mishra, Govt Arts/Commerce College, Bilaspur.

17. Jain, Madhubala. **Shri Ramesh Muni ka Hindi sahitya mein yogdan : Ek anusheelan.** Vikram, Dr Ram Murti Tripathi, Head (Retd), Bank Colony, Dewas Road, Ujjain.

18. Jain, Natthoo Lal. **Seth Govinddas ke natakon mein samajik chetana.** Durgavati, Dr V B Dewalia, Annapurna, 1228, Dayanagar, Jabalpur.

19. Jolly, Rama. **Dr Ram Kumar Verma ke pravarti kavyon ka roop vaigyanik adhyayan.** Kurukshetra,

20. Joshi, Archana. **Strot kavyon mein Lahri kavya dhara ka sameekshatmak adhyayan.** Devi Ahilya, Dr H R Dholakiya, Prof (Retd), 14/C H Scheme No 74-C, Indore.

21. Kailash Singh, B. **Akbari darbar ka Hindi kavi aur Rahim.** Osmania, Dr K L Vyas, Department of Hindi, Osmania University, Hyderabad.

22. Kalyan Das. **Hindi sahitya mein pragatisheel janvadi andolan ka vikas.** Ravishankar, Dr Prem Narayan Dubey, Prof and Head, Department of Hindi, Govt College, Bhilai.

23. Mahatma Singh. **Samaj shastriya pariprekshya mein Hindi natak.** *D Litt. HP,*

24. Meetei, Sagolsem Lanchenba. **Hindi aur Manipuri kee pramukh lokgathaon mein kathanak rurhiyan.** Manipur, Prof J M Singh, Department of Hindi, Manipur University, Imphal

25. Mirza Asad Baig Rustum Baig. **Dinkar aur Kusumagraj ke kavya ka anusheelan.** Marathwada, Dr H D Patil, Lecturer, Department of Hindi, Balbhim College, Beed.

26. Mishra, Maya. **Jaishankar Prasad aur Suryakant Tripathi Nirala ke kavya mein uplabdha samajik shabdavali ka tulnatmak adhyayan.** HS Gour, Dr C N Tiwari, Department of Hindi, Govt Kamala Nehru College, Damoh.

27. Mishra, Sunita. **Rajendra Yadav ke katha sahitya mein vyakt manav jeewan.** Ghasidas, Dr (Smt) Kusum Saxena, Prof, Govt Girls College, Korba.

28. Mritunjay Singh. **Pargatisheel andolan ke sahityik vivad, 1936 to 1953.** JNU, Prof Manager Pandey, Centre of Indian Languages, Jawaharlal Nehru University, New Delhi.

29. Mulla, Zubeda Hashan. **Rameshbakshi ke katha sahitya mein nari partron ke bahumukhi ayam.** Karnatak, Dr (Smt) Mandini Gundurao, Reader, Department of Hindi, Karnatak University, Dharwad.

30. Pant, Prabha. **Chhayavad kee adhyayan parampara ke pariprekshya mein Dr Surya Prasad Dixit ke sameeksha sahitya ka mulyankan.** Kumaun, Dr L K Mishra.

31. Porwal, Jyoti. **Adhunik Hindi vyanga nibandh : Lekhan aur Sharad Joshi ka sahitya.** Vikram, Prof Om Thakur, Head, Department of Hindi, Govt College, Shajapur.

32. Prasad, Neera. **Marxwadi nari dristikon aur Yashpal ke upanyason mein iski abhivyakti.** Bangalore, Dr Saragu Krishna Murthy, Prof, Department of Hindi, Bangalore University, Bangalore.

33. Premanandam, Rayi. **Swatantrayottar Hindi aur Telugu kavita mein vidroh ka swar.** Andhra,

34. Presennakumari, C J. **Adhunik kavya pravrittiyon ke sandarbh mein Nirala kavya ka adhyayan.** CUST, Dr P V Vijayan, Prof (Retd), Department of Hindi, Cochin University of Science and Technology, Kochi.

35. Rautela, Ranjana. **Girija Kumar Mathur ke kavya ka saundaryashastriya adhyayan.** Kumaun, Dr L S Bisht.

36. Roy, Shyam Nandan. **Chhayavadi prabandh kavyon ka vishleshnatmak anusheelan.** Veer Kunwar,

37. Sahu, Manju Lata. **Manak Hindi mein parinam vachak rupon ka vishleshan.** Ravishankar, Dr G P Srivastava, Reader and Head, School of Studies in Linguistics, Pt Ravishankar Shukla University, Raipur.

38. Saraswathy, K V. **Poetical works of Kedarnath Agarwal: A critical study.** CUST, Dr P V Vijayan, Prof (Retd), Department of Hindi, Cochin University of Science and Technology, Kochi.

39. Sarbjit Kaur. **Swatantrayottar Hindi natakon mein badalte huye kam sambandh.** Punjabi, Dr Shanta Lamba, Reader, Department of Hindi, Punjabi University, Patiala.

40. Saxena, Sarita. **Lal kavi krit prabandh kavya Chatrapraksh ka path nirdharan tatha aitihasik aur sahityik anusheelan.** Awadhesh, Dr Narmada Prasad Gupta.

41. Sharma, Bhupindera. **Rajendra Yadav aur Mannu Bhandari ke katha sahitya mein manav sambandhon kee avadharna.** HP,

42. Sharma, Kamlesh. **Ashtachhap kaviyon ke kavya mein samajik parivesh : Sur sahitya ke sandarbh mein.** Osmania, Dr Vijaveer Vidyaalankar, Narendra Oriental College, Hyderabad.

43. Sharma, Madhuri. **Mahadevi Verma ka gadya sahitya : Ek mulyankan.** Kumaun, Dr R A Upadhyay.

44. Sharma, Rekha. **Premchand kee kahaniyon mein nirupit yugbodh.** Kurukshetra,

45. Sharma, Usha. **Makhal Lal Chaturvedi ka sahitya : Kathya evam shilp.** Kurukshetra,

46. Sharma, Vinod Kumar. **Samajik chetna ke pariprekshya mein Amarkant kee kahaniyon ka adhyayan.** Manipur, Prof J P Singh, Department of Hindi, Manipur University, Imphal.

47. Shukla, Rajeev Lochan Nath. **Yashpal ke upanyasyon mein madhyavarg.** AMU, Prof K P Singh.

48. Singh, Niranjan Kumar. **Mithileshwar kee kahaniyan : Samvedana aur shilpa.** Veer Kunwar,

49. Sinha, Rekha. **Fanishwar Nath Renu ke upanyason mein pratibimbit samaj.** Veer Kunwar,

50. Srivastava, Seema. **Premchand ke katha sahitya mein madhya varg.** Awadhesh, Dr Radha Vallabh Sharma.

51. Tagawale, Shobhana Ratansingh. **Kewat aur Mallahon ke vivah ke lokgeet.** Marathwada, Dr N V Sharma, Reader, Department of Hindi, Dr Babasaheb Ambedkar Marathwada University, Aurangabad.

52. Tewari, Mamta. **Manavatavad ke alok mein Priyapravas va Saket ka tulnatmak adhyayan.** Kumaun, Dr C P Rawat.

53. Tiwari, Anil Kumar. **Pt Devidayal Chaturvedi 'Masta' ka vyaktitva evam krititva.** Nagpur, Dr Ghanshyam Vyas, Head, Department of Hindi, Nagpur Vidyapeeth, Nagpur.

54. Tiwari, Nandini. **Shaili vaigyanik alochana, siddhant aur prakriya evam paddhti : Nirala krit Gitika ke pandrah geeton ke vishisht sandarbh mein.** Vikram, Dr Pawan Kumar Mishra, Reader (Retd), Mangal Colony, Ring Road, Ujjain.

55. Usha, A B. **Mahadevi kee gadya rachanayen : Ek alochanatmak adhyayan.** CUST, Dr M Easwari, Prof and Head, Department of Hindi, Cochin University of Science and Technology, Kochi.

Urdu

1. Abdul Halim. **Faiz kee shairi ka tanqeedi mutalea.** JNU, Dr Ashfaq M Khan, Centre of Indian Languages, Jawaharlal Nehru University, New Delhi.

2. Mohammad Asadulah. **Iqbal aur Jammu Kashmir ka Urdu adab.** Jammu, Dr J N Azad.

3. Mohammed Naseemuddin. **A research and critical study of Deccani poetry of 18th century.** Hyderabad, Dr Mohd Anwaruddin.

4. Naqvi Taj, Afroz A. **A critical study of poetic drama in Urdu.** JNU, Dr Aslam Parvez, Centre of Indian Languages, Jawaharlal Nehru University, New Delhi.

5. Siddiqui, Abdur Rasheed. **Fasana-i-Azad kee tahzibi farhang.** AMU, Dr M A Naqvi.

6. Syed Shahid Ali. **Hindustani Mufassireen kee Urdu tafseerain ta aruf wa jaeeza, 1901-1990.** Jamia, Prof Majid Ali Khan, Department of Islamic Studies, Jamia Millia Islamia, New Delhi.

7. Syed Zafar Imam. **Abul Fazal Siddiqi : Hayat aur adabi khidmat.** AMU, Prof A K Qasmi.

Bengali

1. Bandyopadhyay, Sagar Chandra. **Unabingsa satabdir samajik patabhumikai Bangla prahasan.** Burdwan, Dr M N Mukhopadhyay, Principal, B N Mahavidyalaya, Itachuna, Hooghly.

Assamese

1. Goswami, Basanta Kumar. **Theory of Assamese dictionary.** Dibrugarh, Late Prof M N Bora and Prof K D Goswami, Department of Assamese, Dibrugarh University, Dibrugarh.

2. Mahanta, Gahan Kumar. **Origin and development of Ankiya drama and an analysis of its language.** Dibrugarh, Prof K D Goswami, Department of Assamese, Dibrugarh University, Dibrugarh.

3. Rajbanshi, Lily. **Nalinibala Devi : Teor man aru kavya-sadhana.** Dibrugarh, Late Prof M N Bora and Prof N Saikia, Prof and Head, Department of Assamese, Dibrugarh University, Dibrugarh.

Marathi

1. Devidas, Kuwar Sulbha. **Marathi balvangmayat B R Bhagvat yani ghatleli bhar : Ek abhyas.** N Maharashtra, Dr S R Rane, Akshar Upasna Sahaniwas, College Road, Faizpur.

2. Kalantre, Charulata Vilas. **1970-90 kalkhandamadheel sant charitratmak Marathi kadambari : Ek vivechnatmak abhyas.** Nagpur, Dr M R Joshi, Reader (Retd), Department of Marathi, Nagpur Vidyapeeth, Nagpur.

3. Kelkar, Suman. **Datta sankalpana in Marathi literature.** Osmania, Dr (Mrs) Kavita Katke, Department of Marathi, Osmania University, Hyderabad.

4. Peshwe, Manisha Chandrashekhar. **Aagarkarancha samagra sahityacha chikitsak abhyas.** Nagpur, Dr Malti Patil, Department of Marathi, V Naik Art and Social Science Institute, Nagpur.

5. Tadkodkar, Sudhir Manohar. **Critical analysis of the contributions by Prof Anant Kakaba Priolkar to the Marathi literature.** Goa, Dr V B Prabhudesai, Dean, Prof and Head, Department of Postgraduate Teaching, Nagpur University, Nagpur.

Gujarati

1. Bloch Kasam Noormamad. **A comparative study of Gazals of Ghayal, Marij and Befam.** N Gujarat, Dr B M Brahmabhatt, Gujarat University, Ahmedabad.

2. Pandya, Anupama K. **The litrary works of Sneh Rashmi : A study.** Saurashtra, Dr H G Desai.

3. Pathak, Param Ramanlal. **Sri Arobindo rachit Mahakavya 'Savitri' and its Gujarati anuvad : Ek abhyas.** Baroda,

4. Shah, Maheshchandra Champaklal. **Language in theatre, language of theatre with reference to script and performance of major Gujarati full length plays of modern era, published during 1972-1992.** Baroda,

Manipuri

1. Sadhana Devi, Kongbrailatpam. **Mahousadagi Chatnarakpa Meiteigi ana Laiyeng Amasung Hidak Langthak.** Manipur, Dr S Sanatombi Singha, Department of Manipuri, Manipur University, Imphal.

Persian

1. Khan, Niaz Ahmad. **The social conditions of Iran as reflected in modern Persian novels, 1941-1975.** JNU, Prof A W Azhar, Centre of African and Asian Languages, Jawaharlal Nehru University, New Delhi.

2. Zohra Khatoon. **Avadh ke Farsi shoura, 1721 to 1856.** Jamia, Dr N I Siddiqui, Department of Persian, Jamia Millia Islamia, New Delhi.

Arabic

1. Abdullah Farooque. **Ali Tantavi : His contribution to modern Arabic prose.** AMU, Prof Mohd Rashid.

2. Mangattuchali, Abdurahiman. **Panegyrics of Prophet Mohammad in modern Arabic poetry.** Calicut, Dr K M Mohamed, Reader, Department of Arabic, University of Calicut, Calicut.

3. Mohammad Iqbal Husain. **Ittejahat-Al-Naqd-Al-Adabi-Fi-Misr-Bad-Al-Harb-Al-Alamia-Al-Oola Ila-1980 : Be-Isharat-Ihassa-Ila-Tasir-Al-Naqd-Al-Gharabi-Fihi.** D Litt. Lucknow, Dr Shabbir Ahmad.

4. Moideenkutty, A B. **Egyption society as depicted in the realistic novels of Nagrib Mohfouz with special reference to his Trilogy.** Calicut, Dr A Ismail Labbai, Reader, Department of Arabic, University of Calicut, Calicut.

5. Sihotang, Hurfin. **Development of Arabic language in Indonesia : A critical study.** Jamia, Prof Syed Ziaul Hasan Naqvi, Department of Arabic, Jamia Millia Islamia, New Delhi.

6. Zabihullah. **Sheikh Shaltut : His contribution to Arabic language and literature : A critical study.** AMU, Dr S Kafeel Ahmad Qasmi.

Tamil

1. Muthulakshmi, Velayutha Udaiyar. **Pandai Tamilelakkiyangalil aranerikal.** Alagappa,

Malayalam

1. Usha, T K. **The contribution of Vivekodayam magazine to the social and cultural renaissance of Kerala.** Calicut, Dr Shoranur Karthikeyan, Department of Malayalam, S K V College, Thrissur.

2. Valsala Kumari, V. **Family life in the poems of Vailoppilly.** Calicut, Dr Shornur Karthikeyan, Department of Malayalam, S K V College, Trichur.

Kannada

1. Kalburgi, Gundappa Chanabasappa. **Kanavi mattu aadhunik kavya parampara.** Karnatak, Late Dr S S Kotin.

2. Mattihal, Nijalingappa Yamanappa. **Vijapur Jilleya Lavani Melagal janapadeea adhyayana.** Karnatak, Dr S S Bhadrapur, Reader, Department of Kannada, Karnatak University, Dharwad.

3. Sannarama. **Lambanigalu ondu adhyayana : Samskrutika Mathu Janapada.** Kuvempu, Dr H J Lakkappagowda, Prof, Kannada Bharathi, Jnana Sahyadri, Kuvempu University, Shankaragatta.

4. Vasanthalakshmi, K. **Hasana Jilleya Hoisalara basadhigalu : Ondu adhyayana.** Bangalore, Dr Krishna Parameshwara Bhatt, Department of Kannada, Bangalore University, Bangalore.

Telugu

1. Chennamaneni, Padmaja. **1975-85 Nadimi adhunika Telugu kavitvamlo kalatatvasastra ritya bhavachitra pariseelana.** Hyderabad, Dr M Veerabhadraiah.

2. Padma Devi, C. **Manavalli Rama Krishna kavi srujanatmak sahityam : Samagra pariseelana.** Osmania, Dr R Srihari, Department of Telugu, University of Hyderabad, Hyderabad.

3. Subba Rao, Rallapalli. **A comparative study on Kasikandam : Panduranga Mahatmayam.** Telugu.

Geography

1. Abul Salam. **Development and linguistic behaviour among the Mundas in the Chhotanagpur Region : A geographical analysis.** Jamia, Dr M Ishtiaq, Department of Geography, Jamia Millia Islamia, New Delhi.

2. Badiger, K R. **The spatial pattern of transport and communication systems in Goa State.** Karnatak, Dr M F Karennavar (Retd), Department of Geography, Karnatak University, Dharwad.

3. Bhushan, Phool Singh. **Socio economic basis of crimes in Delhi.** Jamia, Prof Majid Husain, Department of Geography, Jamia Millia Islamia, New Delhi.

4. Bisht, Bhupendra Singh. **Rural transformation and resource development in Gomti Basin.** Kumaun, Dr P C Tewari.

5. Das, Chandana. **Geomorphology and water management in Western Midnapore Upland.** Burdwan, Prof P K Sen, Department of Geography, University of Burdwan, Burdwan.

6. Dubey, Anuradha. **Some aspects of the forest resource utilization of Jammu Region : A spatio temporal focus.** Jammu, Dr G B Singh.

7. Guha, Bansari. **Evaluation of rural settlements in South 24 Paraganas.** Burdwan, Dr A Biswas, Department of Geography, University of Burdwan, Burdwan and Dr (Mrs) Keya Das Gupta.

8. Hangaragi, S S. **Urbanization in drought prone area : A case study of Bijapur District.** Karnatak, Dr S S Naregal, Department of Geography, Karnatak University, Dharwad.

9. Pandey, Binoo. **Pao Tribe of M P : A geographical study in social transformation.** Drurgavati, Dr S K Tiwari, Department of Tribal Studies, Rani Durgavati Vishwavidyalaya, Jabalpur.

10. Pant, Pushpa. **Resource appraisal and environmental management in the Upper Catchment of Sarju River of Kumaun Himalaya.** Kumaun, Dr D R Joshi.

11. Rashida Khatoon. **Floods in Uttar Pradesh : A geographical perspective.** AMU, Prof M Farooq Siddiqi.

12. Satyal, Gokul Singh. **Rural transformation in the Kumaun higher Himalaya.** Kumaun, Dr R Chand.

13. Vathsala, V S. **Resource use pattern : A case study of rural community in a Hill-Forest Region.** Bangalore, Dr Daksha C Barai, Prof, Department of Geography, Bangalore University, Bangalore.

History

1. Anjanappa, M. **History of education in an Indian state - Mysore, 1854-1940.** Bangalore, Dr R Ramakrishnan, Department of History, Bangalore University, Bangalore.

2. Arjuna Rao, K. **Vernacular press and the national movement : A case study of Andhra, 1902-1947.** Osmania, Dr K Sarojini Devi, Department of History, Osmania University, Hyderabad.

3. Bhatt, Akhilesh. **Swatantrata se purva Uttari - Pashchmi Uttar Pradesh ke rajnitik evam sanskritik vikas mein Arya Samaj ka yogdan : Moradabad, Rohilkhand, Meerut, Kumaun tatha Garhwal mandalon ke vishesh sandarbh mein.** Kumaun, Dr A K Mittal.

4. Bisht, Rupa. **Kumaun mein samantvad ka udbhav va vikas : Ek aitihasik adhyayan, athvin shatabdi se 1947 isvi tak.** Kumaun, Dr M A Ansari.

5. Chaturvedi, Savita. **Gandhi Jee aur Harijan uddhar.** Ghasidas, Dr P K Mishra, D P Vipra Mahavidyalaya, Bilaspur.

6. Deshpande, Anirudh. **British military policy in India, 1919-1945.** JNU, Dr Majid Siddiqi, Centre for Historical Studies, Jawaharlal Nehru University, New Delhi.

7. Devadas, V P. **Archaeology of Ernad.** Calicut, Dr V T Padmaja, V T B College, Mannampelta

8. Gupta, Sunita. **Social evils in J & K State : Government policy, 1846-1947.** Jammu, Prof Hari Om.

9. Joshi, Rekha. **Madhyakalin Bharat mein nari evam rajniti.** Kumaun, Dr C M Agrawal.

10. Joshi, Viveka Nand. **Kumaun mein samajik pratirodh evam Khushiram.** Kumaun, Dr M A Ansari.

11. Mahobia, Reena. **Pandit Kunjilal Dube ke vyaktitva evam krititva ka vivechnatmak adhyayan.** Durgavati, Dr S C Sharma, Department of History, Rani Durgawati Vishwavidyalaya, Jabalpur.

12. Mishra, Poonam. **Prachin Bharat mein sangeet, 300 BC se 600 AD tak.** Awadhesh. Dr Ajai Shankar Pande.

13. Mishra, Pramod Kumar. **Archaeological remains of Dhenkanal Districts.** Utkal,

14. Pandey, Dinesh Kumar. **Bharatiya rashtravad ke punrutthan mein dharmik andolanon ka yogdan, 1828 se 1950 tak.** Ghasidas, Dr P K Mishra, D P Vipra College, Bilaspur.

15. Pandey, Gautam Kumar. **The Civil Disobedience Movement in the urban areas of UP, 1930-34 : A case study of Allahabad, Banaras and Kanpur cities.** JNU, Dr Mridula Mukherjee, Centre for Historical Studies, Jawaharlal Nehru University, New Delhi.

16. Paswan, Suresh. **The split of Indian National Congress during the regime of Mrs Indira Gandhi.** Veer Kunwar,

17. Sah, Jyoti. **Shakti ke teen dashak : Kumaun mein rashtravadi patrakarita ke adhyayan, 1918-1948.** Kumaun, Dr C S Pathak.

18. Savtanter Kour. **An assessment of European's accounts of Jammu and Kashmir regions since 10th century.** Jammu, Dr Y B Singh.

19. Sharma, Sanjit. **Chhattisgarh mein paryatan aur sambhavnayen : Aitihasik sandarbh mein.** Ghasidas, Dr S D Jha, Govt Girls College, Bilaspur.

20. Singh, Chandra Shekhar. **Indian Government and forests of Bihar : A historical study, 1927-1993.** Vinoba, Dr Chandan Kumar.

21. Singh, Shashi Bhushan Kumar. **Bihar ka koyala udyog : Ek aitihasik sarvekshan, 1774-1947.** Veer Kunwar,

22. Tiwari, Mamta. **Prachin Bharat mein rajya kee suraksha vyavastha : Prarambhik kal se 13vin shatabadi isvi tak.** Ravishankar, Dr L S Nigam, Asstt Prof, Govt College, Shankar Nagar, Raipur.

23. Tiwari, Rita. **Chhattisgarh mein jan andolan ke praneta: Thakur Pyarelal Singh.** Ravishankar, Dr (Smt) Shanta Shukla, Lecturer, School of Studies in History, Pt Ravishankar Shukla University, Raipur.

IRMA

Institute of Rural Management Anand

IRMA announces its 18th Post Graduate Programme in Rural Management (PRM) with specialisation in Agri-Business/Development

Admission Notice

The Institute

IRMA promotes professional management of rural organisations through four interrelated activities of education, training, research and consultation Its faculty is composed of experienced practitioners and academics IRMA has state-of-the-art pedagogic and communication equipments including internet facility. Its library is fully computerised, with a large collection of books, periodicals, CD-ROM titles, videos, microfiche and an excellent reprographic section The campus is spread over a sprawling 60-acre landscaped site Student hostels have furnished, single-occupancy rooms.

The Programme

PRM is a two-year residential programme, leading to **Post Graduate Diploma in Rural Management (PGDRM).** However, students have the option of completing the two years at a stretch or in two stages They can opt for a **Certificate in Rural Management** (CRM) at the end of the first year They can rejoin, within three years, and complete the second year of the programme. The PGDRM is recognised as equivalent to a master's degree by the Association of Indian Universities (AIU) and is on the approved list of the All India Council for Technical Education (AICTE)

Eligibility

Graduates (15 years of education) in **any** discipline may apply, provided they have **50%** (45% for SC/ST) of the aggregate marks at graduation **and 55%** (45% for SC/ST) in their school leaving examination (Xth std or XIIth std.) which is held by a recognised Board/University Those who expect to complete ALL degree requirements before **10th June 1997** can also apply. IRMA encourages managers/officers, working in Co-operatives and other Development Organisations, to apply with sponsorship from their employers The flexibility of doing the PRM in two stages should facilitate such sponsored candidates **Only Indian Nationals are eligible**

Selection

Selection for the programme will be on the basis of a Written Test and Interview The **Written test** will be held on **15th December, 1996 (Sunday)** to test proficiency in English, comprehension, mathematics, analytical abilities and awareness about rural development issues. **We shall have 36 test centres,** spread throughout the country. **Interviews** will be conducted in **February 1997** at Anand

Placement

IRMA provides a campus placement service and its Alumni are highly valued in a large number of organisations.

How to Apply

For application form and prospectus, send a self-addressed stamped (Rs 6.00) envelope (16cm x 23cm) to :

Admissions Co-ordinator
Institute of Rural Management
Post Box No. 60
Anand - 388 001 (Gujarat)

LAST DATE FOR RECEIVING REQUESTS FOR APPLICATIONS: OCTOBER 8, 1996.

LAST DATE FOR RECEIVING COMPLETED APPLICATIONS: OCTOBER 31, 1996.

IRMA's website http://irma irm.ernet in

Sree Chitra Tirunal Institute for Medical Sciences & Technology

Thiruvananthapuram - 695 011

**(An Institute of National Importance under the Ministry
of Science & Technology, Government of India,
established by an Act of Parliament
with the status of a University)**

ADMISSION NOTICE

ACADEMIC SESSION COMMENCING : JANUARY 1997

Applications in the prescribed form are invited from qualified candidates for admission to the following Academic Programmes of the Institute

1. **Ph. D**

Ph.D. Programmes are offered in the areas of Biological, Medical, Biomedical, Chemical, Physical and Engineering. Those holding individual fellowships from the C.S.I.R., U.G.C. or any other national funding agency may also apply for registration Two, Sree Chitra Tirunal Institute, Fellowships for technology development are also available.

2. **DM/M.Ch Courses**	**Duration**
D.M. Cardiology	3 years
D M Neurology	3 years
M. Ch. Cardiovascular & Thoracic Surgery	3 years
M. Ch Neurosurgery	3 years
M.Ch Neurosurgery	4 years
3. **Post Doctoral Certificate Courses**	
Cardiovascular & Neurosurgical Anaesthesiology	1 year
Neuro & Vascular Radiology	1 year
Vascular Surgery	1 year
4. **Master of Public Health**	18 months

MINIMUM EDUCATIONAL QUALIFICATION FOR ENTRY :

Ph. D. Masters degree in the relevant subject with at least 60% marks at the qualifying examinations.

Selection will be on the basis of performance in the written test/interview. Those who have passed the UGC, CSIR National Eligibility Test or hold individual fellowship may directly appear for the interview

DM Course : MD in General Medicine or Paediatrics or equivalent qualification. Candidates with MD in Psychiatry with a minimum of six months residency posting in General Medicine/Neurology during the said course can also apply for DM Neurology. One seat in DM Cardiology is reserved for candidates with MD Paediatrics or equivalent qualification.

M. Ch Courses : MS in General Surgery or equivalent qualification for 3 year courses and MBBS with one year Post-registration House Surgeoncy in General Surgery from a University/PG Institute/Teaching Hospital recognised by the Institute, for 4 years course in Neurosurgery.

Post Doctoral Certificate Course : MD in Anaesthesiology/Diagnostic Radiology, MS in General Surgery or equivalent qualification.

All the aforesaid qualifications should have been obtained from an Indian University recognised by the Institute or from the National Board of Examinations or from any other Board recognised by the Institute.

Master of Public Health : This four semester programme is restricted to candidates who are already in employment and can come on study leave/deputation Candidates may come from medical or non-medical disciplines. Medical graduates with 3 years of experience, engineering graduates and postgraduates with 5 years experience will be considered for selection. Prospective candidates will be evaluated on the basis of a Health project proposal in about 1500 words to be submitted by them, followed by interview.

5. **Diploma/Certificate Courses :**

(i) **Post Basic Certificate Courses in Nursing**	
Cardiovascular and Thoracic Nursing	One year
Neuro Nursing	One year
(ii) Diploma in Cardiac Laboratory Technology	Two years
(iii) Diploma in Operation Theatre Technology	Two years

(iv) Diploma in Neuro Technology	Two years
(V) Diploma in Advanced Medical Imaging Technology	Two years
(vi) Certificate Course in Blood Banking Technology	One year

Minimum Educational Qualifications for Entry

Post Basic Certificate Courses in Nursing :

(a) G.N.M. or B Sc Degree in Nursing.

(b) For G.N.M. candidates, one year experience as bed side nurse after passing the course as on 1st of January 1997.

(c) Professionally registered as a nurse by any recognised State Nursing Council in India or by Nursing Boards approved by the Indian Nursing Council.

Diploma Courses

Diploma in Cardiac Laboratory Technology
Diploma in Neuro Technology

B.Sc Degree of any recognised University in India with Physics as major or ancillary subject and having an aggregate of at least 60% marks No failure in the subject Physics during the degree course. Candidates belonging to Scheduled Caste/Scheduled Tribe are required to secure only 50% in the qualifying examinations.

Diploma in Operation Theatre Technology

A Diploma in Electronics, Biomedical Engineering or Instrumentation, with good academic record from a recognised Institute.

Diploma in Advanced Medical Imaging Technology

Certificate in Radiographic Assistance (CRA) or equivalent qualification from a recognised Institution.

Certificate Course in Blood Banking Technology

B Sc. degree of any recognised University in India with Zoology or Physiology as major or ancillary subject and having an aggregate of at least 60% marks for these subjects Candidates belonging to Scheduled Caste/Scheduled Tribe are required to secure only 50% in the qualifying examinations.

Only those who satisfy the minimum qualifications prescribed and those who expect to qualify before the date of selection, are advised to apply

Upper age limit as on 1st January 1997 is 35 years for Ph.D., DM/MCh, PDCC, MPH Courses and Nursing Courses and 25 years for Diploma and Certificate courses, relaxable by 5 years, for exservice personnel with a service of not less than 5 years, SC/ST and sponsored candidates

Candidates with more than two failures in University or equivalent examinations are not eligible for admission. Admission will be based on the candidates, previous academic record and their performance in the selection tests to be held in the Institute during November 1996

Those selected, expecting MPH scholars, will be paid stipend as fixed by the Institute. In the case of MPH scholars, tuition fee will be charged at rates as for the MBA programme at the Indian Institutes of Management. All scholars will be provided with accommodation as per Institute s rules

Prescribed forms for application and prospectus can be obtained by a written request accompanied by a Bank Draft for Rs. 250/- in case of doctoral and MPH Programme and Rs 100/- for other programmes drawn in favour of **SCTIMST, Thiruvananthapuram -11** payable at Thiruvananthapuram. The request should contain the name and address of the candidate, Course to which admission is sought and details of the Demand Draft Application forms are NON-TRANSFERABLE and candidates are not allowed to apply for more than one Course

Last date for issue of application forms : 1st October 1996

Last date for receipt of completed forms : 4th October 1996

Request and Applications with incomplete information and those after the last date are liable to be rejected. Further details can be had from the Prospectus

Apply to :

The Registrar,
Sree Chitra Tirunal Institute for Medical Sciences & Technology,
Thiruvanathapuram - 695011 Kerala

Telephone	**Fax:**	**GRAMS :**
0471 - 443152 **DID - 441147*150**	**0091-471-446433**	**CHITRAMET**

DIRECTOR

Advt. No. SCTIMST/ACAD/PRG/96.

CLASSIFIED ADVERTISEMENTS

ST. TERESA'S COLLEGE

P. B. NO. 1013
ERNAKULAM, COCHIN - 682 011
S. INDIA

WANTED

Lady Lecturers in -

1. Mathematics - Substantive vacancy
2. Statistics - Leave vacancy
3. Chemistry - Sunstantive vacancy
4. Home Science - Substantive/Leave vacancy

All Open quota - subject to the approval of the University/Government. Age and qualification as per U.G.C. norms. Apply **within one month** in the form available from the Principal on payment of Rs.100/- with self-addressed stamped envelope.

Candidates who will be appointed wil give a written undertaking they wil not have any claim for appointment to the U.G.C. scheme vacancies and they will be prepared to teach in the Pre-Degree level and will go to the Pre-Degree category.

NORTH EASTERN HILL UNIVERSITY

SHILLONG

No. F. 2-1/Admn/96-2144 Dated21.8.96

ADVERTISEMENT FOR THE RESEARCH POSITION

Applications are invited for the post of JRF/SRF/RA to work on CSIR funded scheme "Nuclear Magnetic Resonance, Tin Mossbauer and X-ray cryatallographic investigation of Organotin (IV) carboxylates and evaluation of their biological properties with reference to anti-tumour and anticancer activity" for a period of three years.

Applicants for the JRF should posses M.Sc./M.Phil with NET/GATE qualification. The candidates applying for SRF position must have obtained M.Sc. or equivalent degree and should possess two years training in methods of research and aptitude for research as assessed from published work. The candidate applying for RA position must have obtained a Ph.D. degree in the relevant field. Experience in chemical, biological and instrumental techniques would be an advantage.

The fellowship carries usual allowances as per CSIR rules. To apply please send your Curriculum Vitae along with copies of academic transcript, list of publications, research experience, and the name of three academic referees. Please mark clearly on the top of the envelope "Application for the post of JRF/SRF/RA".

Applications to : Dr. T.S. Basu Baul, Regional Sophisticated Instrumentation Centre, North Eastern Hill University, Bijni Complex, Bhagyakul, Shillong - 793 003, Meghalaya. **within 30 days** from the date of publication.

Enquiries : Phone :: 0364-227283
Fax :: 0364 - 760076on
Email :: rsicahg@meghalaya, ren. nic. in.

THE COCHIN EDUCATION SOCIETY

COCHIN COLLEGE BUILDING
KOCHI-2

Require for the Cochin College, Jr. Lecturer (Pre-Degree) in English and History. Master's Degree in the subject with 50% marks and above with B.Ed. degree are considered as per Govt. directive. These who have passed the National Eligibility Test of UGC/CSIR are also considered. The recruitment is for teaching at the Pre-degree level and selected candidates will be eligible for State's pay scale only. The candidates should not have completed 35 years on 1-1-96. Qualified candidates may apply in the prescribed form available from college office on payment of Rs. 100/- (Rs. 110/- if required by post). Last date for receipt of completed application is **30-9-96**.

PRESIDENT

PUNJABI UNIVERSITY

PATIALA

Advt. No. 56/PRO/RECT./96

Applications on the prescribed form are invited for the following posts so as to reach the Deputy Registrar (Establishment) latest by **20th September 1996**. The name of the post applied for be invariably mentioned on the cover in Block Letters :

1. **Lecturer in French** : One
   (Rs. 2200-4000)
   Qualifications : as prescribed by the U.G.C. These will, however, be supplied alongwith application form.
2. **Principal Senior Secondary Model School** : One
   (Rs. 2410-4000 + 150/- Special pay)
   M.A./M.Sc. and M.Ed. with six years teaching experience in a higher secondary school. OR
   M.A./M.Sc. and B.Ed. with ten years teching experience in a higher secondary school.

   Knowledge of Punjabi upto Matric standard is essential. Qualifications may be relaxed in case of otherwise suitable candidate.

   Preference may be given to a candidate having experience of teaching in an army school/well established public school.

Note :

1. Incomplete applications and those received after the last date shall not be entertained.
2. The eligibility of every candidate will be determined on the basis of qualifications aquired by him upto the last date fixed fur the receipt of applications.

Application Form can be obtained from the Head, Publication Bureau, Punjabi University, Patiala-147002, on payment of Rs. 30/- or by sending a demand draft of Rs. 30/- drawn in favour of Registrar, alongwith a self-addressed envelope (25 x 10 cms) affixed with postage stamps worth Rs. 10/-.

REGISTRAR

INDIAN COUNCIL OF MEDICAL RESEARCH

I.C.M.R. AWARDS - 1995

Indian Council of Medical Research invites nominations/applications from Indian Scientists for its various prizes and awards in the field of Biomedical Sciences. Application forms and other relevant information about the prizes can be obtained from the **Director General, Indian Council of Medical Research (INDO-FOREIGN CELL), Ansari Nagar, New Delhi - 110 029.** Nominations and completed applications should reach this office on or before **30th November, 1996.**

SCHOOL OF CORRESPONDENCE COURSES

ANDHRA UNIVERSITY : VISAKHAPATNAM - 530 003

ADMISSION NOTIFICATION
FOR THE ACADEMIC YEAR 1996-97

Applications are invited from the candidates residing in India for admission into the following courses in the School of Correspondence Courses for the academic year 1996-97.

Course	Eligibility
I. SIX MONTHS FOUNDATION COURSE:	
1. Introductory Course (both English and Telugu Media) This course is offered to prepare the candidates for Entrance Examination to be held in June, 1997 for Liberalised Admission into B.A./B.Com Course without any formal academic qualification by supplying study material.	No Formal academic qualification is required: But the candidate should have completed 18 years of age by 1st July of the year of Examination.
II. GRADUATE COURSES:	
2. **B.A.** (Both English and Telugu Media) with the combinations of Special English, Special Telugu, Special Hindi, History, Economics, Politics, Public Administration, Sociology and Mathematics.	Intermediate/P.U.C. or equivalent or pass in the Entrance Examination conducted by this School.
3. **B.Com.** (Both English and Telugu Media)	Intermediate/P.U.C. or equivalent or pass in the Entrance Examination conducted by this School.
4. **B.Sc.** (English Medium only) with the combination of Maths, Physics and Chemistry	Intermediate/P.U.C or equivalent with Physical Sciences and Mathematics.
III. POST-GRADUATE COURSES (TWO YEAR DURATION) :	
5. **M.A. English**	B.A./B.Com./B.Sc./B.A. (O.L)/B.F.A./B.A.L.,
6. **M.A. Hindi**	B.A./B.Com./B.Sc with Hindi as one of the subjects of study (Please see prospectus for full details).
7. **M.A. Telugu**	B.A./B.Com./B.Sc. or B.A. (Special) with Telugu as one of the subjects of study or B.Sc. (Home Sciences) with a study of Telugu for 2 years with a maximum of 100 marks for each paper (Please see prospectus for full details of eligibility)
8. **M.A. (Economics)** (English Medium only).	B.A. with Economics (Main & Ancillary)-
9. **M.A. History** (English Medium only)	B.A. (Pass or Hons.) O.T.B.A./B.A. (O.L.) with History as one of the subjects.
10. **M.A. Politics** (English Medium only)	B.A. with Politics or Public Administration as one of the subjects of study or B.L , or B.G.L., or B.A.L
11. **M.A. Public Administration** (English Medium only)	B.A with Politics or Public Administration as one of the subjects of study or B.L or B.G.L or B.A.L
12. **M.A. Sociology** (English Medium only)	B.A. Degree with one of the Social Sciences, M.A. in any Social Sciences, M.A. History, M.A. Philosophy, M.A. Education, B.Sc. Home Sciences, B.Sc. Agriculture, B.Sc. Nursing, B.Ed., B.P.Ed., B L (5 Years), B.A.L.
13. **M.Com.** (English Medium only) without quantitative techniques	B. Com, only
IV. ONE YEAR PROFESSIONAL DIPLOMA COURSE:	
14. **Post-Graduate Diploma in Co. Operation and Rural Studies** (English Medium only).	In-service Candidates working in Co. Operatives and allied institutions including non-officials with any Bachelor's Degree other than B F A. and B O.L
V. NON-CONVENTIONAL ONE YEAR POST-GRADUATE DIPLOMA COURSES:	
15. **Post-Graduate Diploma in Translation**	Candidates should have passed any degree examination of this University or any other University recognised by AU as equivalent thereto with Telugu as mother tongue or any degree with Telugu as a subject of study.
16. **Post-Graduate Diploma in Environmental Studies (English Medium only)**	Candidates should have passed any degree examination of this University or any other University which is recognised by Andhra University as equivalent thereto.
17. **Post-Graduate Diploma in Functional English.**	Candidates should have passed any degree examination of this University or any other University which is recognised by Andhra University as equivalent thereto.

Applications will be issued from 24-8-1996. Filled-in applications should reach the undersigned on or before 15-10.1996.

Intending candidates may write to the undersigned by Designation for application form and prospectus by sending Rs. 40/- by Demand Draft/Money Order in favour of the Director, School of Correspondence Courses, Andhra University, Visakhapatnam-530 003, Andhra Pradesh.

The candidates have to write their name, address and course for which they want the application form on the back of the D.D. or M O coupon. The Candidates may also remit cash at the cash counter of the School of Correspondence Courses towards application form and prospectus ***Postal Orders and Cheques will not be accepted.***

OTHER PLACES OF SALE OF APPLICATIONS:

(A) At New Delhi:

1 Sales Counter, Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi.
2. Sri Venkateswara College, Dhaula Kuan, Benito Jaurez Road, New Delhi.

(B) Study Centres:

The admission application forms and prospectus are also available at the following study centres in the state of Andhra Pradesh:

(1) Government College, Srikakulam; (2) M R College, Vizianagaram (3) Mrs. A V.N College, Visakhapatnam; (4) Government College, Rajahmundry, (5) P.R Government College, Kakinada; (6) Sri C R. Reddy College, Eluru; (7) SRR & CVR College, Vijayawada; (8) A.C. College, Guntur; (9) D.N.R. College, Bhimavaram, (10) Silver Jubilee College, Kurnool, (11) Indian Institute of Commerce and Management; Hyderabad; (12) AMAL College, Anakapalle, (13) RSR & KRR College, Bobbili; (14) Noble College, Machilipatnam; (15) VSR & NVR College, Tenali; (16) Government College, Narasannapeta; (17) S.S. & N. College, Narasaraopeta; (18) SGS College, Jaggaiahpeta, (19) SKBR College, Amalapuram: (20) Sri Sarvodaya College, Nellore; (21) VRS & YRN College, Chirala; (22) VV & M College, Ongole; (23) BVK College, Visakhapatnam, (24) SKVP & Dr KS Raju Arts & Science College, Penugonda; (25) YNM College, Naraspur; (26) Progressive Degree College, Hyderabad, (27) Government Degree College, Narasipatnam (Visakhapatnam District); (28) SAS College, Vijayawada, (29) CSR Sarma College, Ongole

The School has no agents and takes no responsibility for prospectus issued and promises made for admission by any other institution.

The results of B.A./B.Com Entrance Examination held in July, 1996 will be announced shortly and the successful candidates in the said examination need not apply for admission application form and prospectus for admission into First Year Degree Course The School will arrange to send the Admission Application form and prospectus alongwith marks statement-cum-eligibility certificate to such candidates after the results are announced They have to pay an amount of Rs 40/- towards the cost of admission application form and prospectus alongwith the prescribed tuition fee at the time of admission. However, the duly filled in admission application form alongwith the necessary enclosures including Demand Draft/Money Order receipt towards prescribed fee should reach the School of Correspondence Courses on or before the prescribed last date

Waltair, **PROF. V. ABRAHAM**
Dt. 14-8-1996. **DIRECTOR**

Christian Eminent

ACADEMY OF MANAGEMENT, PROFESSIONAL EDUCATION & RESEARCH
RAVI SHANKAR SHUKLA NAGAR MAIN ROAD, INDORE 8
(Approved by M. P. Govt. & affiliated to D.A.V.V., Indore)

Requires

MANAGEMENT & COMMERCE FACULTY AND LIBRARIAN

- **ASSOCIATE PROFESSOR** (Management) - 2 Posts
- **ASSISTANT PROFESSOR** (Management) - 3 Posts
- **ASSISTANT PROFESSOR** (Commerce) - 2 Posts
- **LIBRARIAN** - 1 Post

AREAS OF SPECIALISATION

MANAGEMENT Gen. Management, Finance, Marketing, Production & Operations Management, Personnel & System Management, MIS
COMMERCE . Accounts & Taxation

QUALIFICATION & EXPERIENCE

AS PRESCRIBED BY AICTE/UGC
DESIRABLE M Phil or Ph D in relevant branch For Librarian-knowledge of computensed system of Library

PAY SCALE & EMOLUMENTS

(i) Associate Prof Rs. 3700-125-4950-150-5700 (Min Emoluments Rs 10,075/- p m)
(ii) Asstt. Prof./Librarian · Rs 2200-75-2800-100-4000 (Min. Emoluments Rs 6,499/- p m)

Advance increments to outstanding and deserving candidate

Interested candidates should apply giving full details of academic qualifications, teaching and research experience, publications alongwith true copies of marks statement of all public examinations passed

Applications duly completed in all respects should reach the Director within 15 days from the date of publication of this advertisement.

Dr. M. A. Farooqui
DIRECTOR

ankit

---

ublished by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-2.
Grams: ASINDU. Phones: 3230059, 3232305, 3232429, 3233390, 3231097 and 3232435. Fax: 011-3236105 Telex: 31-66180 AIU IN
Printed by Navchetan Photoset (P) Ltd. at Navchetan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055. Tel. 529157